Power Tools
The First 100 Years

NEW: The Woodworking Hall of Fame™ Page 43

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WOOD®

THE WORLD'S LEADING WOODWORKING MAGAZINE

NOVEMBER 1997 ISSUE 100

The best basement shop ever!

Check it out on page 48

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- Mobile tool base
- Shop cabinet system
- Toddler bike

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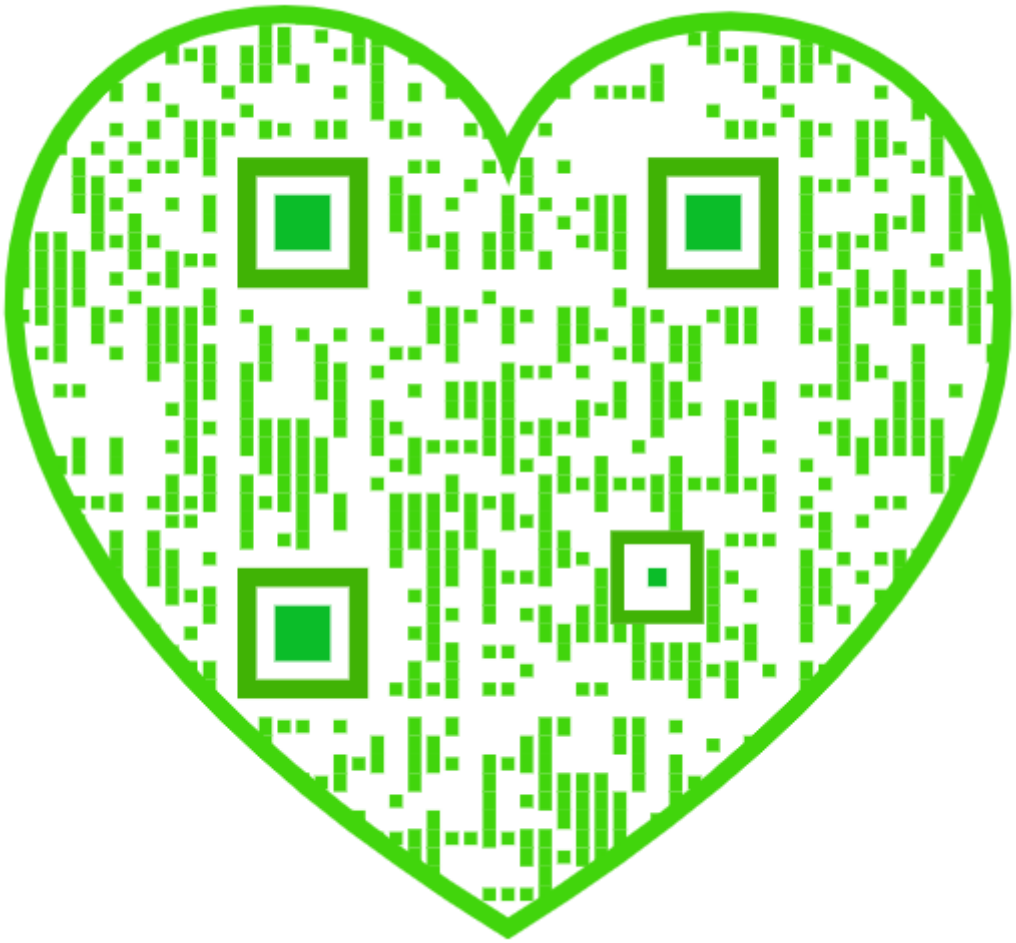

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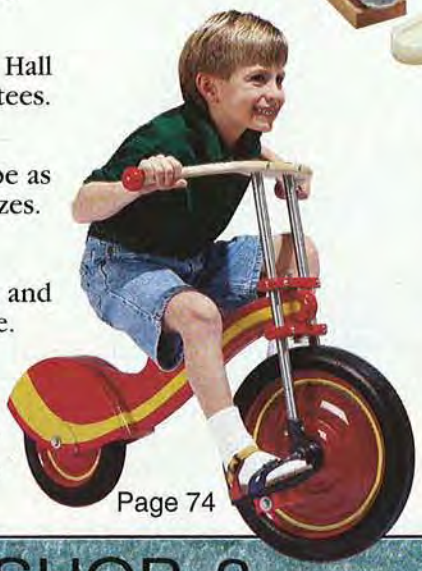
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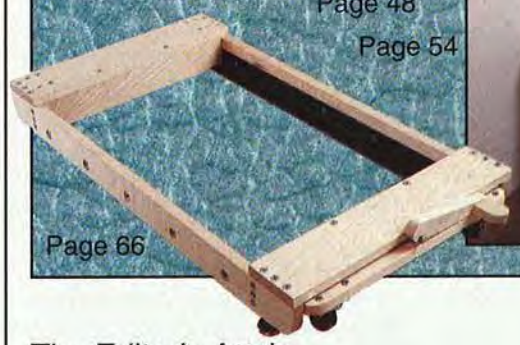
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THE EDITOR'S ANGLE

Hey, Everybody Let's Celebrate

Welcome one and all to issue 100 of *WOOD* magazine. To help celebrate, we've gone to great lengths to prepare for you an issue that is befitting this grand occasion. Here are some of the highlights:

Beginning on *page 37*, you will find an article titled "*Commonsense Woodworking.*" It's a collection of some great woodworking advice we've collected from the first 100 issues of this magazine. You'll read about how to get organized, which woodworking reference books we recommend, the best way to finish your projects, and lots of other helpful information.

And then starting on *page 48*, we present *"IDEA SHOP™ 3, The Basement Shop."* As with IDEA SHOPS 1 and 2, this 12×16' space features a bucketful of inventive ideas that you can put to good use in your shop. Highlights include plans for our super-efficient, easy-to-build cyclone dust collector; a mobile tool base; and our roll-out, flip-top tool cabinets, to name just a few.

I think you'll also find interesting the article "*The Amazing Evolution Of Woodworking Power Tools.*" It will chronicle for you the advances that have been made during the 20th Century. For example, did you know that the first electric hand drill was a clunky contraption that weighed almost 17 lbs.? In contrast, today's cordless drills weigh in at less than 5 lbs. For the first time ever, you'll learn the fascinating origins of many of the tools you use in your very own woodworking shop.

Thanks to all of you readers who have supported us so generously during our first 100 issues. Stay with us and we'll treat you to an endless supply of great woodworking information and inspiration geared to your every interest.

And be sure to take a look at the article *"WOOD Magazine's Woodworking Hall of Fame™"* beginning on *page 43*. The 10 people who have been inducted in this inaugural year all richly deserve the honor, and we couldn't be happier to be able to do this for them. Thanks to everyone who helped us in the selection process.

Each year, we plan to induct two or three more people into the Woodworking Hall of Fame. And we would like your help in making our selections. Please see *page 84* for more information about *WOOD* Magazine's Woodworking Hall of Fame and how you can contribute.

Larry Clayton

THE NEW DW744 10" PORTABLE TABLE SAW FROM DEWALT

RIP IT UP, THEN PACK IT UP.

On the job with Jack Rule Custom Trim & Rail, Dallas, Texas.

The new DEWALT 10" Portable Table Saw is the first to deliver big saw performance with the convenience of portability. The DW744's telescoping fence extends to a full 24-1/2" rip capacity. That's enough to tackle 4' x 8' sheets. And, the saw's rack and pinion system keeps the fence consistently parallel to the blade for accurate cuts without repeated measuring. Simply retract the fence to carry the 64-pound saw to the next job. The large tabletop has a durable coating that won't mar your work. The saw runs on a 13 amp, high-torque motor and has a dust collection port. It's not just a table saw. It's a DEWALT. For more information, call 1-800-4-DEWALT.

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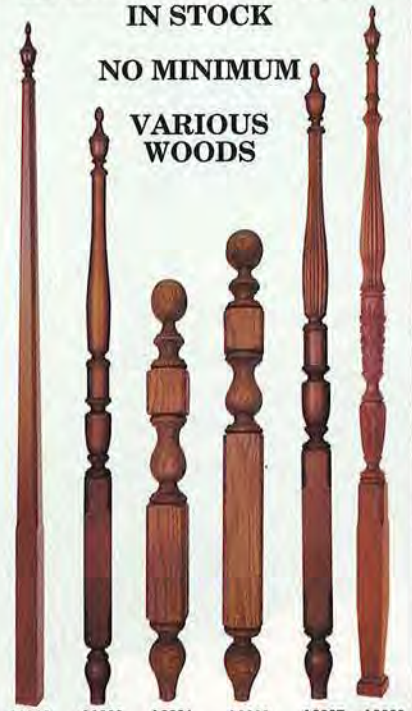

A0802 PENCIL CANOPY | A0808 PLAIN POST | A0801 CANNON | A0800 BALL | A0807 REEDED POST | A0803 RICE BED

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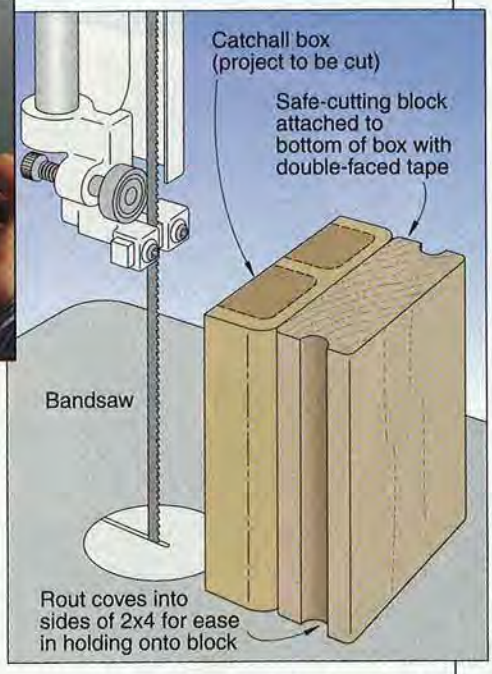
TALKING BACK

Bandsaw safety for the thumb

Congratulations on your "One Cool Catchall" box in the February 1997 issue. It's a nice design and I plan to make several for gifts. However, your photo on page 32 makes it look like a left thumb is about to get a trim. I would like to suggest a safer way to bandsaw the lid and bottom.

Use double-faced tape to attach a 2×4 block to the backs of the lid and bottom. The block will give you something safe to grip and provide a steadier base for cutting.

—Vincent Clarke, Wilmington, Del.


Catchall box (project to be cut)
Safe-cutting block attached to bottom of box with double-faced tape
Bandsaw
Rout coves into sides of 2x4 for ease in holding onto block

Vincent, we certainly agree that you can't place too high a priority on shop safety. Sometimes, a handscrew clamp will help you shape small parts safely. But, in this case, your safe-cutting block works best because a clamp might break the piece. As a further refinement, we suggest routing the edges with an internal bullnose (fluting) bit to improve the grip.

Editorial position open at *WOOD* magazine

Do you have the skills necessary to join the world's leading woodworking editorial team? If so, we would like to hear from you. We want to hire a creative writer to help plan, research, and produce articles on tool, technique, project, and feature articles.

You must have a college degree in journalism or English, and a minimum of 3 years writing experience at a magazine or newspaper. A knowledge of woodworking processes and an interest in woodworking tools is essential. We're looking for a well-organized self-starter with an eye for accuracy and details, and the ability to translate technical information into easy-to-understand, lively copy. Also, the ability to conceive strong photographic approaches to articles is essential. Good public contact skills are a must.

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We welcome your comments, criticisms, suggestions, and even compliments. We'll do our best to respond, perhaps on this page!

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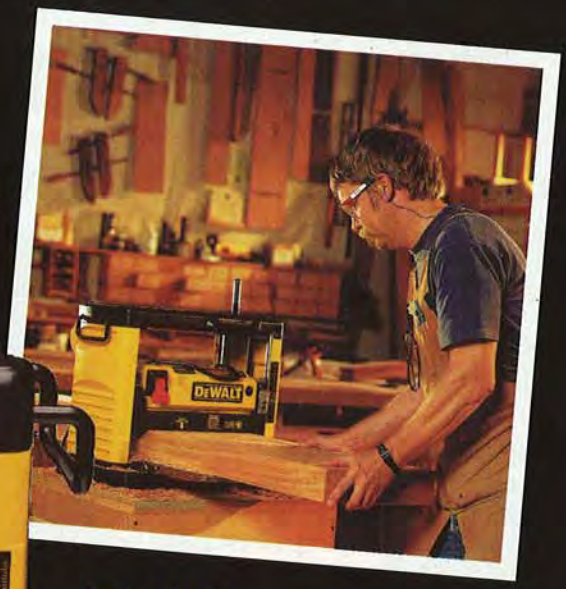
THE NEW DW733 12-1/2" PORTABLE PLANER FROM DEWALT

AVOIDING SNIPE IS A LOCK.



On the job with
O.B. Williams Company,
Seattle, Washington.

The exclusive four-column DEWALT Head Lock eliminates the movement that contributes to snipe. Simply push the handle to securely lock the cutterhead against four steel columns. With the cutterhead stabilized, the same amount of stock is removed from the entire length of the board. To further reduce snipe, the DW733 has large infeed and outfeed tables to stabilize and reduce movement of material passing through the planer. And, unlike other planers, the DW733 has the exclusive DEWALT turret depth stop to quickly and accurately return to pre-set thicknesses. The planer's easy-to-read magnified depth scale measures to 1/32", while a material removal scale measures to 1/64" and a calibrated depth crank measures to 1/16" per rotation. The DEWALT knife changing system features a magnetic gauge to accurately hold the knives in position and free both hands. It's not just a planer. It's a DEWALT. For more information, call 1-800-4-DEWALT.

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Stay-Put Tool Holders

Our pegboard rack keeps tools at-the-ready

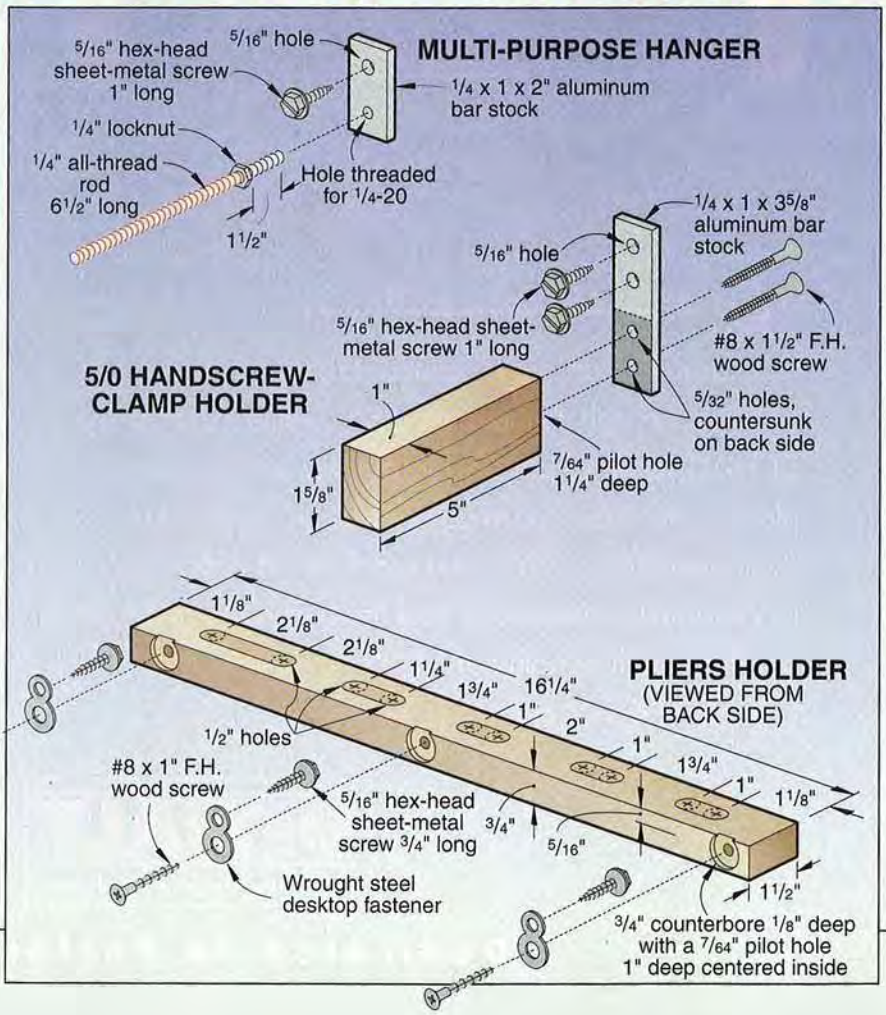
Wall-mounted pegboard provides ideal tool storage—as long as you can get the hanger "pegs" to stay put. Faced with that challenge, we designed a number of tool holders for IDEA SHOP™ 3 that attach firmly, but take only a minute or two to move to a new, more convenient location on the pegboard.

To make the pliers holder, mark slots where shown on the drawing *below*, and drill ½" holes at each end of the marked slots. Drill slightly over-lapping holes to remove the stock between the end holes, and smooth up the sides of the slots with a chisel. Then, attach the wrought steel desktop fasteners (available from Woodworker's Supply, 800/645-9292) to the holder as shown.

The 5/0 handscrew-clamp holder, shown at *right*, mounts to the pegboard with a short length of ¼×1" aluminum bar stock and a hex-head sheet-metal screw. For larger size handscrew clamps, make the wooden block longer, and wider.

By using varying lengths of all-thread rod, you can create multi-purpose hangers for bar clamps or individual tools, such as the adjustable wrenches in the photograph. We dipped the all-thread rod in plastic coating for protection from sharp edges and to provide a no-slip surface to keep tools in place.

***Note:** When you install the mounting screws in the pegboard, just snug them up; over-tightening will easily strip out the holes in the pegboard.*



Project Design: Jim Downing
Illustrations: Roxanne LeMoine
Photograph: Bill Hopkins

Print this article

THE NEW DW788 20" VS SCROLL SAW FROM DEWALT

THE FIRST THING IT CUTS IS VIBRATION.

On the job with
Spaghetti Western Furniture
Atlanta, Georgia.

You won't find a smoother operating scroll saw than the new DEWALT 20" Variable Speed Scroll Saw. Vibration is dramatically reduced by a double parallel link arm design which has pivot points at the front of the saw. With the pivot points up front, less of the arm moves during cutting for a smoother and quieter operation. This design also keeps the blade perpendicular to the work, eliminating under- or overcutting. To make following a line easier, the DW788 has a fixed-position blade clamp to decrease deflection, while blade changing is made easy with the DEWALT tool-free blade change system. Conveniently, the on-off switch, electronic variable speed, flexible dust blower and blade tensioning lever are all located on the front upper arm so there is no need to reach around the saw for adjustments. An oversized cast iron table provides extensive material support and bevels 45° left and right for shadow boxes or inlays. It's not just a scroll saw. It's a DEWALT. For more information, call 1-800-4-DEWALT.

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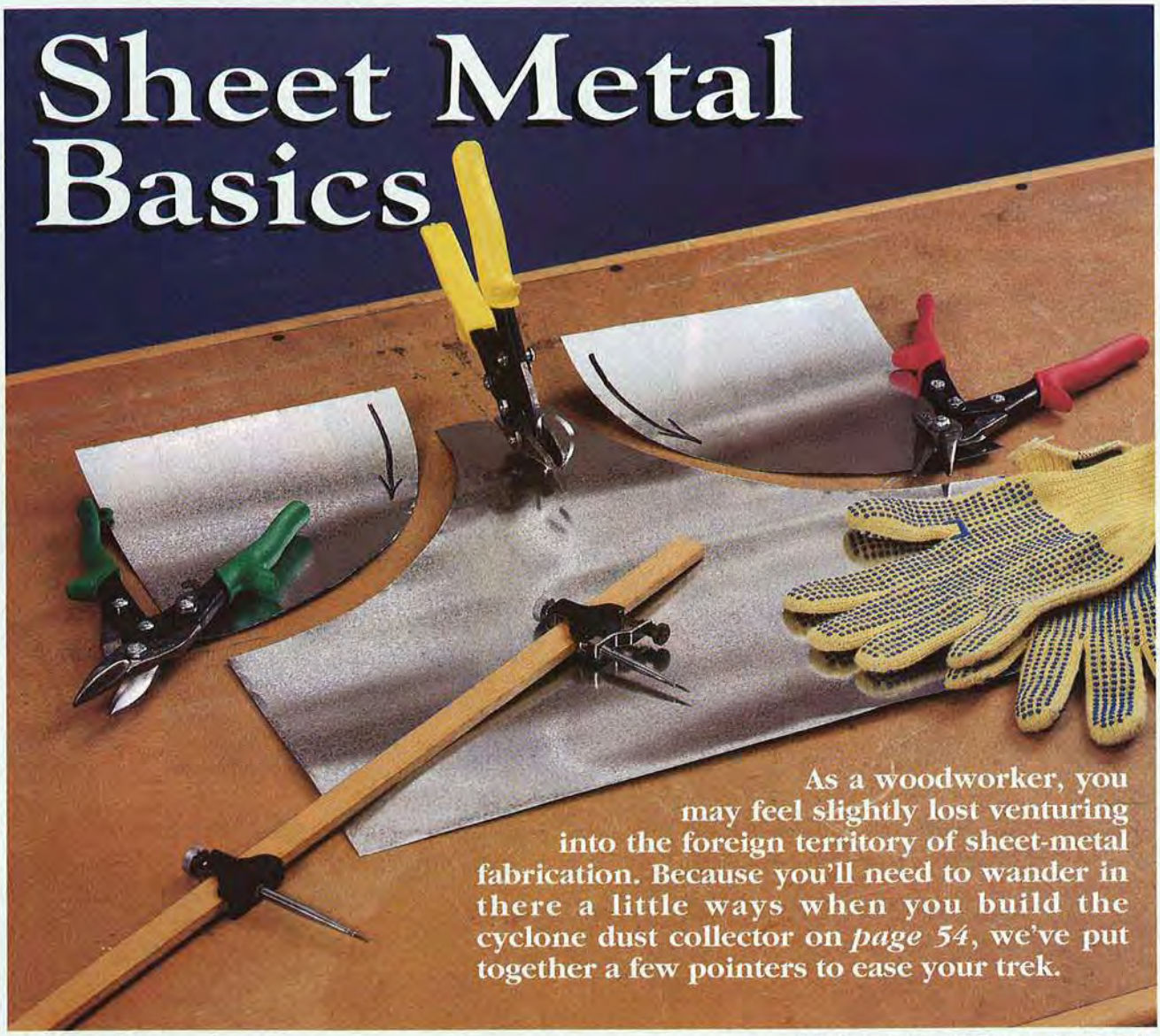
Sheet Metal Basics



As a woodworker, you may feel slightly lost venturing into the foreign territory of sheet-metal fabrication. Because you'll need to wander in there a little ways when you build the cyclone dust collector on *page 54*, we've put together a few pointers to ease your trek.

You'll need a few things

You may have some of the tools required already: a portable drill, twist-drill bits, scratch awl, center punch, and measuring tools. For large-diameter curves, a trammel like the one in the photo *above* will come in handy.

You'll also need snips for cutting the metal, along with pop rivets and a pop-rivet tool for joining the pieces of metal you cut. You can buy them at home centers or hardware stores.

Snips. For cutting sheet metal, we prefer aviation-style compound snips, shown *above*. Avoid the old-style tin snips with long handles and short jaws; it's a hard tool to cut curves with.

Aviation snips cut in specific directions—straight, left curve, or right curve. Handle color signifies the direction.

Pop rivets. We like steel pop rivets ⅛" in diameter for light sheet-metal work. (The diameter indicates the size of the hole the rivet fits through.)

You'll find these rivets available in three lengths—short, medium, and long, corresponding to grip lengths of ⅛", ¼", or ½". Choose the nearest grip length longer than the thickness of the materials you're joining.

Aviation snips cut curves or straight lines. Arrows indicate the direction we cut to make the curves with the snips shown. The trammel with scriber comes in handy for layout, and gloves will protect your hands.

Pop-rivet tool. You can't install pop rivets without a special tool, shown in the photo on *page 10*. The tool is inexpensive, and any manufacturer's tool works with any brand of rivets, as long as they're the same diameter. Most pop-rivet tools feature interchangeable nosepieces, allowing one tool to set rivets of any diameter. A long nose like the one shown reaches into tight spots, making the tool easier to use and more versatile.

Continued on page 10

OK, Hold It.

Now Spread 'Em.

The innovative POWER PRESS™ Pipe Clamp, from the makers of QUICK-GRIP® Bar Clamps, is more than just a pipe clamp. By simply reversing the two movable clamping sections, it quickly becomes a spreader. Perfect for all kinds of woodworking applications, the POWER PRESS Pipe Clamp can do anything a regular pipe clamp can do, only faster. It works on both threaded and unthreaded pipe. And two rubber pads keep gripping surfaces from marring your work. The most versatile pipe clamp to hit the shelves, the POWER PRESS Pipe Clamp is going to revolutionize the way you work.

Look for it wherever quality tools are sold.

PowerPress™

AMERICAN TOOL COMPANIES, INC.

FROM THE MAKERS OF QUICK-GRIP® BAR CLAMPS

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MADE IN USA

Continued from page 8

Safety gear. Sheet metal has sharp edges. And because it's springy, it sometimes seems to jump at you maliciously. Without protection, that can lead to a cut. Just as bad, tiny metal splinters can get under your skin, and they're harder to get out than wood splinters.

So, wear gloves. The yellow Kevlar-fiber cutproof gloves shown afford great protection. But any kind of work glove, even cotton gardening gloves, can save you from a painful cut. Wear long sleeves to protect your arms, too, especially when cutting curves in metal with snips. And you should always wear eye protection.

Laying out the lines

You can't count on your trusty sharp pencil for drawing layout lines on sheet metal. Pencil marks won't show up well enough or last long enough to be of much help. Felt-tip pens and permanent markers write well on metal, but their wide lines hinder precision. Instead, scribe cutting lines with a scratch awl.

You'll also need a straightedge with a nonskid back. If you can't find one at a hardware store, try an art-supply store. Or, you can make a suitable substitute by sticking strips of double-faced tape to a steel ruler. Press the exposed face against your sleeve a few times to reduce the tape's tack before use.

Straight-leg dividers or a trammel works well for scribing arcs or circles on metal. To prevent the pivot point from skidding off center, stick a piece of masking tape or duct tape at the center. If the inside of the circle will be waste, you can simply centerpunch the centerpoint to prevent skidding.

Cutting and joining tips

Before making the parts for your project, lay out some straight and curved practice lines on a piece of sheet metal. Then, cut along them to get the feel of your snips. Some snips, like the yellow-handled one shown in the *opening photo*, shear out a narrow strip to make a cut. (Often called duct snips, this one cuts straight or curves, and works well on stovepipe or other cylinders.) With this type, make sure you take the strip from the waste side of the cutting line.

When cutting with snips, closing the jaws all the way leaves a jagged-looking edge on the metal, which looks crude and is difficult to eliminate. Instead, close the jaws most of the way, release pressure on the handles to let the jaws open, then push the jaws forward to continue cutting.

A lap joint is the simplest way to join sheet metal. And pop rivets provide a quick, effective means of fastening a lap joint, as shown *below*.

To make the joint, simply overlap the parts by at least ¼" (or as specified by project instructions). Then, drill rivet holes through both pieces.

Mating holes must align exactly, so the best approach is to drill through both pieces at once. To do that, tape the pieces together or clamp them, using C-clamps or bar clamps and clamp blocks.

Mark the hole positions, and centerpunch them. For a neat job, align the rivet holes and space them evenly. Drill the holes with a twist-drill bit the same diameter as the rivet. Drill the first hole through both parts, then insert a rivet (without setting it) to keep the parts from creeping out of alignment while drilling the remaining holes.

(Designer/builder Jan Svec used tape a little differently for the cyclone project. He cleaned the joint area on the top face of one piece with lacquer thinner, then applied a strip of double-faced tape to it. Next, he cleaned the underside of the piece on the other side of the joint, and brought the pieces together. The tape held both parts in position while he drilled the holes and helped seal the riveted joint.)

It's easy to remove a pop rivet, too. Simply drill through the rivet head with the same size bit you used to drill the rivet hole.

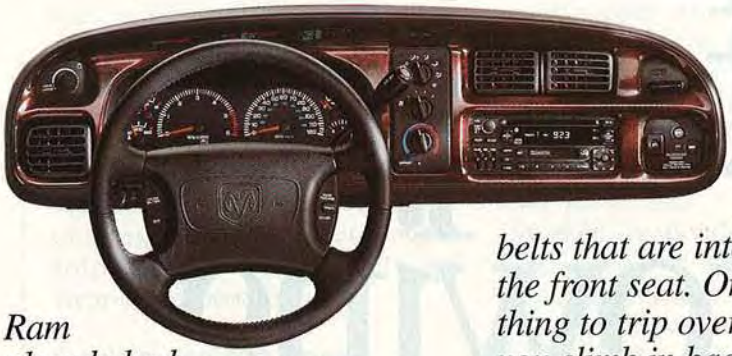
Squeezing the handles of a pop-rivet tool expands the tail end of the rivet to make a tight joint. The mandrel that extends from the rivet breaks off when the rivet is pulled tight enough.

Written by Larry Johnston with Jan Svec
Photographs: John Hetherington

More power.
More torque.
More towing.
More payload.
More room.

More

The New Dodge



Ram already had more available power, torque, towing and payload than other full-size pickups. And, now, Ram Quad Cab, the first four-door extended cab.[1]

Yet another first from The New Dodge: seat belts that are integrated into the front seat. One less thing to trip over when you climb in back.

Our Magnum® V-10 and Cummins Turbo Diesel are now available on short-wheelbase 2500 Club and Quad Cabs. And horsepower ratings on our two Magnum V-8 engines have been increased to 230 hp on our 5.2L V-8 and 245 hp on our 5.9L V-8.

doors.

Ram Quad Cab™

Building better bodies through super computers. Our four-door Ram Quad Cab has the same structural soundness and integrity as our two-door Ram Club Cab.

Dodge Ram is the only full-size pickup to be honored with the Strategic Vision Total Quality Award™ for "Best Ownership Experience." And it's won it for three straight years.[2] For more info, call 1-800-4-A-DODGE. Or visit us at our Web site at www.4adodge.com

[1]Excludes Crew Cabs.
[2]Winner of Strategic Vision's 1995, 1996 and 1997 Total Quality Award™ for "Best Ownership Experience" in the Full-Size Pickup class, based on its 1995, 1996 and 1997 Vehicle Experience Studies™ of 31,440 ('95), 35,652 ('96) and 31,521 ('97) Oct.-Nov. new vehicle buyers of 170+ ('95) and 200+ ('96 and '97) models after the first 90 days of ownership.

Always use seat belts. Remember a backseat is the safest place for children.
All comparisons based on data available at time of printing.

Ram The New Dodge

Print this article

HOW TO APPLY HAMMERITE

The finish we used on the IDEA SHOP™ 3 cabinetry

When researching a finish for IDEA SHOP 3, we looked for a tough, durable product that hides filled nail holes and covers the textured surface of particleboard. At the same time, the finish had to look terrific and clean easily. Fortunately, we ran onto Hammerite, a paint that many machinery manufacturers use on their tools. It makes wood look and wear like metal. Here's our shop-tested method for applying this impressive product.

Prepping the project for the paint

After you complete a project, round over all edges possible. Even those you'd normally leave square will paint better with a 1/16" round-over. Fill the cut edges of particleboard or voids in plywood with a putty such as Durham's Rock Hard Water Putty, and sand them smooth when dry.

Prime the surface next

Good ventilation is a must when working with this paint. The solvent used in Hammerite evaporates more quickly than regular mineral spirits (paint thinner). Observe normal precautions associated with open flames.

Prime all surfaces to be painted, taking special care to seal the porous edges of MDF (medium density fiberboard). Use either xylene-resistant oil-based primer or 100% acrylic latex primer. Since MDF edges are notorious for soaking up finishes, apply one coat of primer to just the edges, followed by a second coat to the edges and surfaces. Left unprimed, the light-colored sheet goods will show through. Also, we found it beneficial to tint the primer close to the finish color. After the primer dries, sand it lightly with 220-grit sandpaper.

It's time to apply the paint

Thin Hammerite with either the manufacturer's proprietary thinner or xylene, using four tablespoons of thinner to a quart of paint. Left unthinned, Hammerite is too thick to apply with a roller. Hammerite has a marbleized appearance even in the can and does not blend to a uniform appearance like an ordinary enamel. Regardless, make sure to stir it well.

Apply Hammerite with a ¼" nap mohair paint roller. We prefer the mohair rollers with "cut pile" over fuzzy nap rollers. Hammerite tends to pull fibers out of fuzzy rollers and leave them in the finish. Mohair rollers also leave a more uniform paint texture on the wood.

Apply a fairly heavy coat of the Hammerite. Then, without applying more paint, go back over the surfaces, rolling in just one direction for a more uniform coverage. Minor lap marks will blend in as the paint dries.

The paint is very thick and will sag on a vertical surface. Since it dries to the touch in about 30 minutes, we suggest you paint a horizontal surface, let it set, turn the project, and paint the adjacent surface (now horizontal). Let the project with two painted adjacent surfaces sit overnight in a heated shop. Left in a cool area, it dries and hardens very slowly.

Next, paint the opposite adjacent surfaces. Don't set a painted surface on spacers until it's completely hardened. If you're waiting for a surface to dry, put the roller in the tray, and cover it with aluminum foil. When storing a roller overnight or for reuse later, roll out as much of the paint as possible. Remove the roller from the roller frame and wet with a small amount of thinner and put it in a Ziploc bag.

For more information about Hammerite paint or for the name of local retailers, call 800/733-4413.

Written by Marlen Kemmet
with Jan Svec
and Chuck Hedlund
Photograph:
John Hetherington

SD608
8" Diameter
29/32" Max. Cut
Max. RPM
6000
U.S. Patent No. 5,368,079
MADE IN ITALY
1 MARK = 0.004
US PATENT 5368079
Teeth: 24 Outside
4 Chippers
WARNING: Read And Follow The Instruction Manual Provided By The Manufacturer Of Your Machine Before Installing Or Operating This Cutting Tool. Read And Follow All Safety Instructions Packaged With This Product. Use on Hardwood, Softwood, Plywood, and Wood Composition Material. Never Use Chippers Alone. Always Use Both Outside Blades To Reduce The Risk Of Eye Injury. Always Wear Eye Protection. Keep All Guards Provided With Your Machine In Place And In Good Working Order. Keep Hands Away From Cutting Area. Keep Hands Away From Blades. Do Not Perform Operations Freehand And Always Use A Push-Stick For Narrow Work. Do Not Reach Underneath, Around, Or Over Blade While It IsTurning. Do Not Attempt To Remove Cut Material While Blade Is Moving. Do Not Cut Warped Material With The Convex Side Toward The Table Of A Radial-Arm Or A Table Saw.

"Freud's new Dial-A-Width Dado set is the most innovative dado set we've ever seen."

American Woodworker Magazine, December 1996

Spend your time being totally amazed with this incredible dado but don't spend a lot of time looking for shims . . . there aren't any. Now with a turn of the dial you can have the super fine adjustments that you have always needed in a stack dado. No more shimming and no more wasted time . . . a simple click of the dial is all that you need.

The new Dial-a-Width dado is the best dado that has come along in years. See for yourself how easy it is to use on your table saw or radial arm saw. Check out the precise joints. Look at the flat bottom groove. You will know immediately that it is not a wobble dado. Notice that the sharp, splinter-free cuts are those that you have come to expect from Freud. This dado produces the best finish and highest quality cuts of any dado available today.

The Dial-a-Width dado does perform like a stack dado but we have replaced the shims with a patented dial system. With our exclusive hub dial you can be totally sure of the accuracy of your adjustments. Each "click" of the dial adjusts the blade by .004". These are very precise adjustments. But if you need a closer adjustment . . . no problem. Simply stop the dial between "clicks".

The Dial-a-Width dado is easy to use, very precise and provides exceptional cuts. For the serious woodworker, there's nothing better.

Splinter free, flat bottom grooves in all materials including problem materials like veneered plywood or melamine.

Dial system with precise width adjustment, eliminates shimming.

Includes arbor wrench and a sturdy storage case.

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Always disconnect power before making adjustments.
Red is a registered trademark of Freud, USA, Inc.
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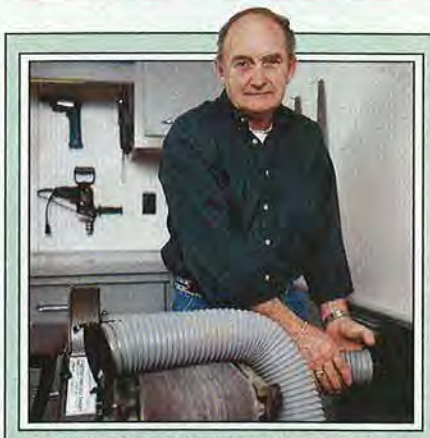


John Hardy shows off his winning shop tip, a nifty idea that helps him keep his shop dust-free.

As he prepared for retirement a couple of years ago, John Hardy completely gutted his shop, rewired it, and installed a central dust-collection system, a furnace, air conditioner, and lots of storage.

During the reconstruction, John's interest in another hobby—camping with a motor home—helped him come up with the tip at *right*. We liked John's tip so well that we used it to connect several IDEA SHOP™ 3 tools to our cyclone dust-collection system.

Your solution to a particular woodworking problem may be worth $40. If it's selected as the Top Shop Tip, you'll win a tool prize valued at $250 or more, and we'll include your photo in this column. To submit a tip, send a letter, including your daytime phone number, and a photo or drawing of your idea, to:

Tips from Your Shop
(And Ours)
***WOOD*® Magazine**
1912 Grand Ave.
Des Moines, IA 50309-3379

We try to publish original shop tips only, so please send your idea only to *WOOD* magazine. Also note that we cannot return submissions. Thanks!

Bill Krier
ASSISTANT MANAGING EDITOR

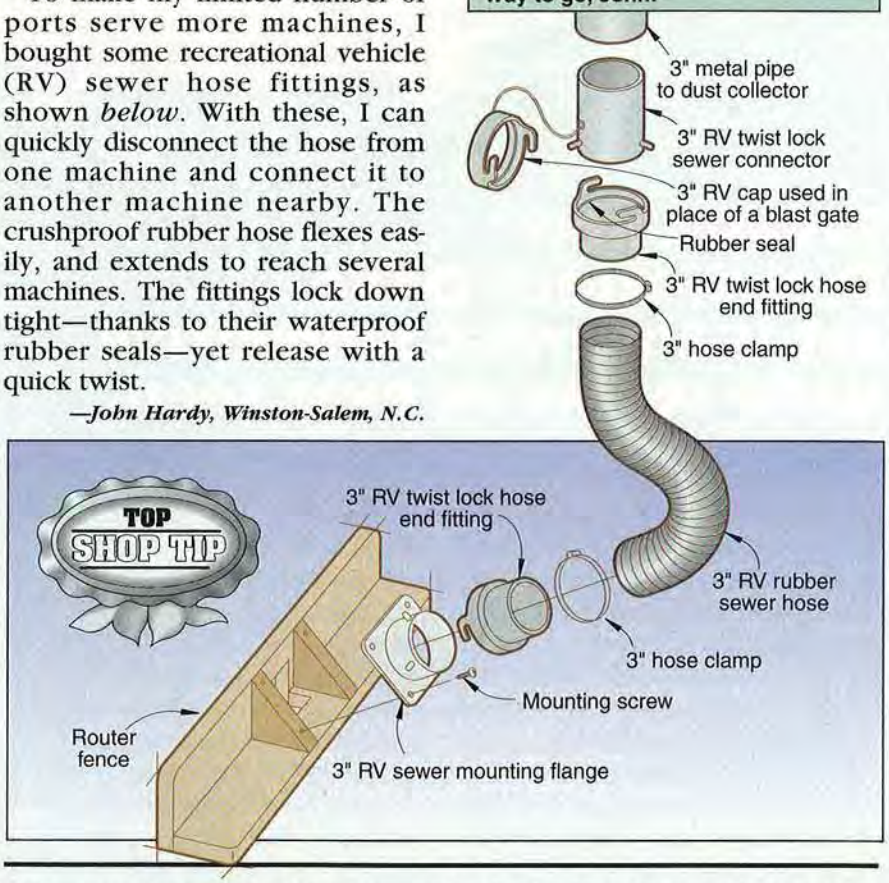
RV hose fittings speed dust collector hookups

When I recently remodeled my shop, I installed a dust-collection system and enclosed the ductwork within my shop walls. But I soon had more equipment than outlets and no easy method of adding more collection ports.

To make my limited number of ports serve more machines, I bought some recreational vehicle (RV) sewer hose fittings, as shown *below*. With these, I can quickly disconnect the hose from one machine and connect it to another machine nearby. The crushproof rubber hose flexes easily, and extends to reach several machines. The fittings lock down tight—thanks to their waterproof rubber seals—yet release with a quick twist.

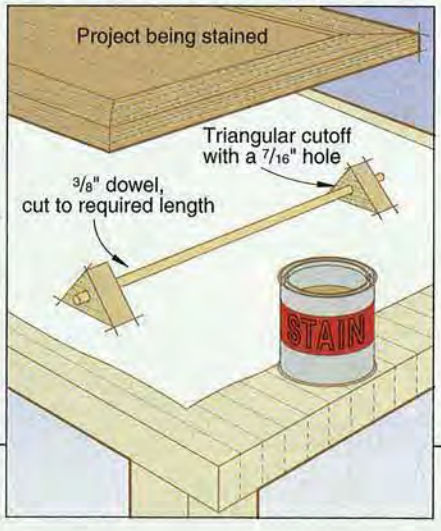
—John Hardy, Winston-Salem, N.C.

For submitting the Top Shop Tip, John Hardy receives a 50" JET Xacta Commercial Tablesaw Rip Fence. Way to go, John!


3" metal pipe to dust collector
3" RV twist lock sewer connector
3" RV cap used in place of a blast gate
Rubber seal
3" RV twist lock hose end fitting
3" hose clamp
TOP SHOP TIP
3" RV twist lock hose end fitting
3" RV rubber sewer hose
3" hose clamp
Mounting screw
Router fence
3" RV sewer mounting flange

Triangular cutoffs come in handy for staining jig

After I stained one side of a paneled door, I was looking for a way to hold it so I could stain the other side. Since I had mitered the corners of the door frame, I had some triangular cutoffs in my scrap bin that were just what I needed.



The triangular scraps support the piece being stained only on their "peaks." Drilling holes in the cutoffs and inserting a dowel helps keep the blocks from tipping over. You can adjust this simple jig for any width project by sliding the blocks along the dowel. For larger pieces, simply use a longer dowel.

— Norman Crowfoot, Tucson

Continued on page 18

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HIGH POWER

14.4V
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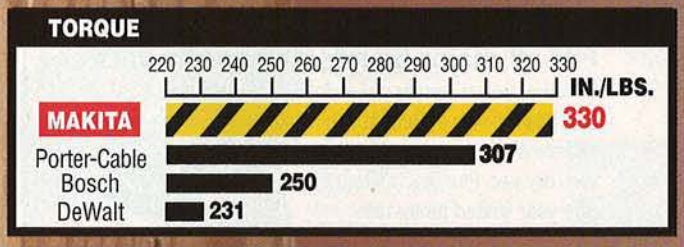
18 Torque Settings
Powerful Makita Motor for high performance
Externally Accessible Brushes for easy replacement
Keyless Chuck with patented Hand-Tite® feature for easy bit installation
Push Button Forward/Reverse Switch operates from both sides of tool
Makita
14.4V
2.0 Ah

CORDLESS FOR THE LONG-RUN



Unlike other cordless drills on the market, the Makita is built to last. It features a Makita designed and manufactured motor for greater durability and externally replaceable carbon brushes for longer life – a Makita exclusive. In fact, the motor of this drill lasts almost five times longer than other industrial cordless drills. Add the power of our 14.4 volt, 2.0 Amp hour battery and you've got a drill that delivers the highest torque-to-run time in its class. With the lighter weight and overall ergonomic design you can work longer with less fatigue.

Durable. Tremendous torque. Longest run time. Low weight. Most Comfortable. Makita's 14.4V drill is definitely built for the "***Long Run***".

For more information, call 1-800-4-MAKITA

Competitive models tested: Bosch 3610/3610R, DeWalt DW991/DW991K, Porter Cable 872-9872.

Model 6233DWAE

makita

IT'S ALL THE POWER YOU NEED.®

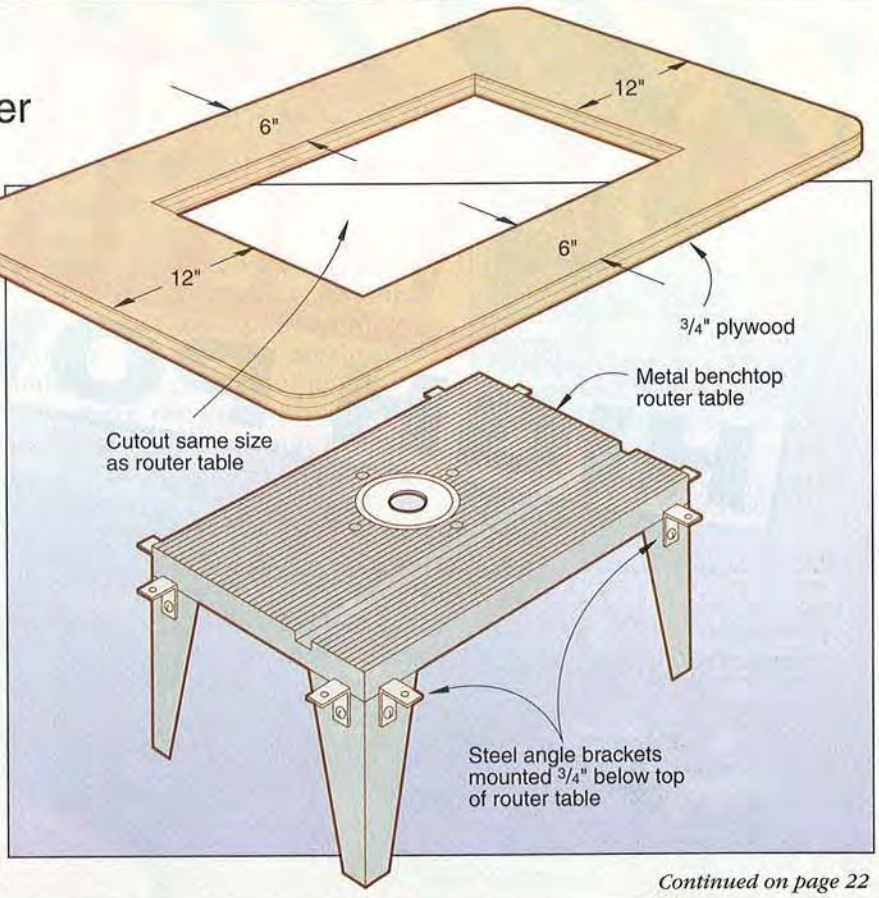
Continued from page 16

Auxiliary top boosts router table's capacity

My benchtop router table works just fine for most of my projects. But I occasionally need more work surface area to help support large workpieces. To meet those needs and still work in my small shop, I built a laminate-covered auxiliary top that adds 1' of width and 2' of length to my existing router table.

I turned the metal benchtop unit upside down on the larger top to mark the table's location. Using a jigsaw, I cut out the hole for the router table. Right-angle brackets, bolted to the router table, support the auxiliary top and keep it flush with the regular tabletop. A couple of screws at opposite corners hold the top in place. When I don't need the larger top, it slips off and stores out of the way

—Ann Clausen, Racine, Wis.



Continued on page 22

A breakthrough in wet/dry vac filter performance
From the makers of GORE-TEX® Fabric
Traps five times more fine dust than ordinary wet/dry vac filters
Even drywall dust. Tests prove CleanStream® Filters trap 99.7% of all particles at 0.3 microns, compared to less than 20% for conventional filters.
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CleanStream® Filters shed dirt with a simple rinse under running water. By combining moisture-resistant material with exclusive "non-stick" technology, they resist clogging and won't degrade when used to vacuum liquids.
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This Delta exclusive gives you a lock on snipe control. Patent-pending cutterhead snipe control lock stabilizes the cutterhead during operation, for complete rigidity.

Those who've had a sneak preview have nice things to say about it. Priced in the middle of the pack–we're betting it'll end up at the head of its class.

Quick-change 2-knife system includes two high-speed steel, double-edged, reversible knives, a wrench and installation tool for quick and accurate knife changes.

Plane your own stock up to 12½" wide and 6" thick. All the way down to ⅛" thick.

Easy-to-read English/Metric Scale makes fast work of depth-of-cut settings.

Beware of snipers.

Grab it and go. Weighing in at only 65 pounds, it'll go to work wherever you want it to. Stash it out of the way when it's not in use.

Properly adjusted infeed/outfeed tables can go a long way toward snipe reduction. A low-friction stainless steel base, in combination with these adjustable infeed/outfeed tables, gives you a large smooth surface for moving stock through your planer.

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Practical as they are, most portable planers are notorious snipers. If you're looking to minimize sniping without sacrificing portability, check out Delta's new 12½" Portable Planer (Model 22-560), with its exclusive snipe control lock. Call toll free for the name of your nearest Delta dealer. Delta International Machinery Corp., 800-438-2486. In Canada, 519-836-2840.

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This is the drill that will give you a boost. Check out the new 18-volt cordless from Craftsman. Our most powerful cordless ever. Capable of driving through brick and concrete. Fully equipped with 345 lbs. per inch of torque, a two-speed gearbox, a 24-position clutch, 1400 RPMs and two rechargeable batteries. It's a drill you're gonna want to hold on to. And it's available only from Sears.

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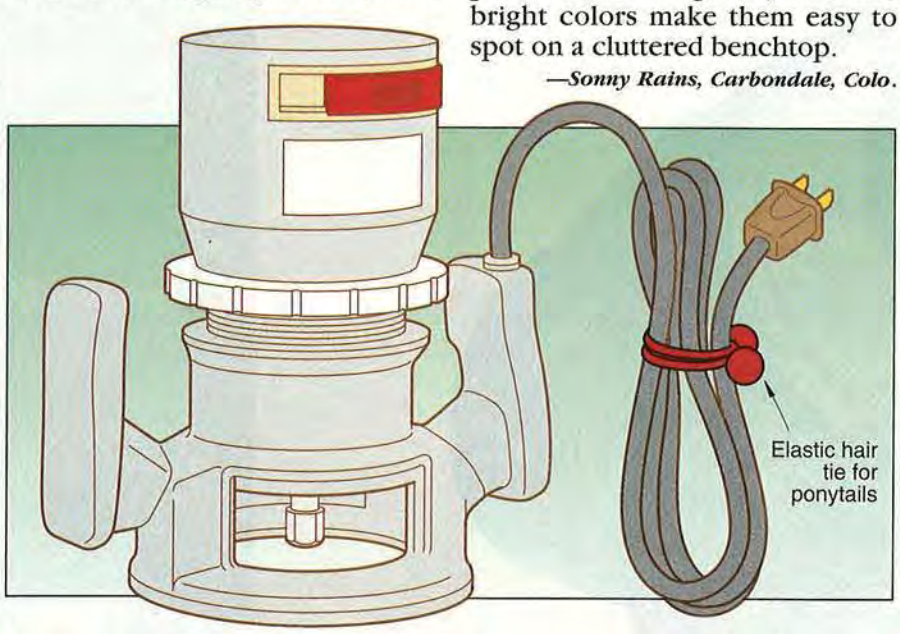
Continued from page 18

They hold ponytails or power cords

I like to keep my portable power tools out of their cases and on a shelf, where they're readily accessible. But I don't like dealing with all of those tangled power cords. I found a simple solution at the department store: elastic hair ties, the kind that girls use to hold ponytails in place. They're inexpensive, work great, and the bright colors make them easy to spot on a cluttered benchtop.

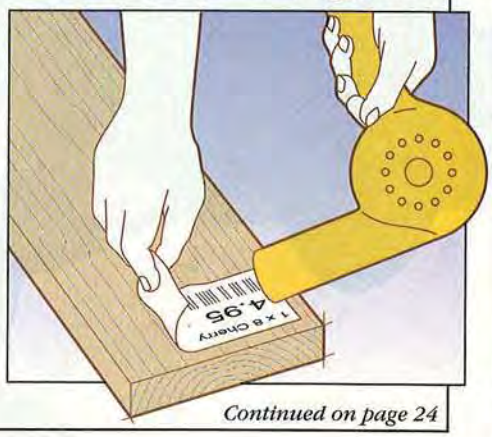
—Sonny Rains, Carbondale, Colo.



Hair dryer helps remove stickers

Adhesive-backed, bar-coded tags on lumber may speed up the checkout process, but it's tough to remove them later. I tried scraping, sanding, and solvents, but nothing worked very well until I tried a hair dryer. The heat softens the adhesive, and the tag usually peels off in one piece.

—Robert S. Hall, Scarborough, Maine



Continued on page 24

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The Best Just Got Better!

Introducing The New Model 350

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*Better Homes and Gardens® WOOD ® Magazine (Nov. '95)

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The JDS AIR-TECH 2000 systems will remove 99% of particles as small as five microns and 80% of the particles as small as one micron.

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A PRECISION CUT RELIES ON A WIDE TABLE FOR SUPPORT, SO WE'VE PROVIDED THE LARGEST TOP SURFACE (34" X 19-5/8") OF ANY PORTABLE TABLE SAW.

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When you buy one new C10RA portable table saw, we'll give you the metal stand absolutely FREE! That's a $75 retail value. Call today . . . limited time offer while supplies last.

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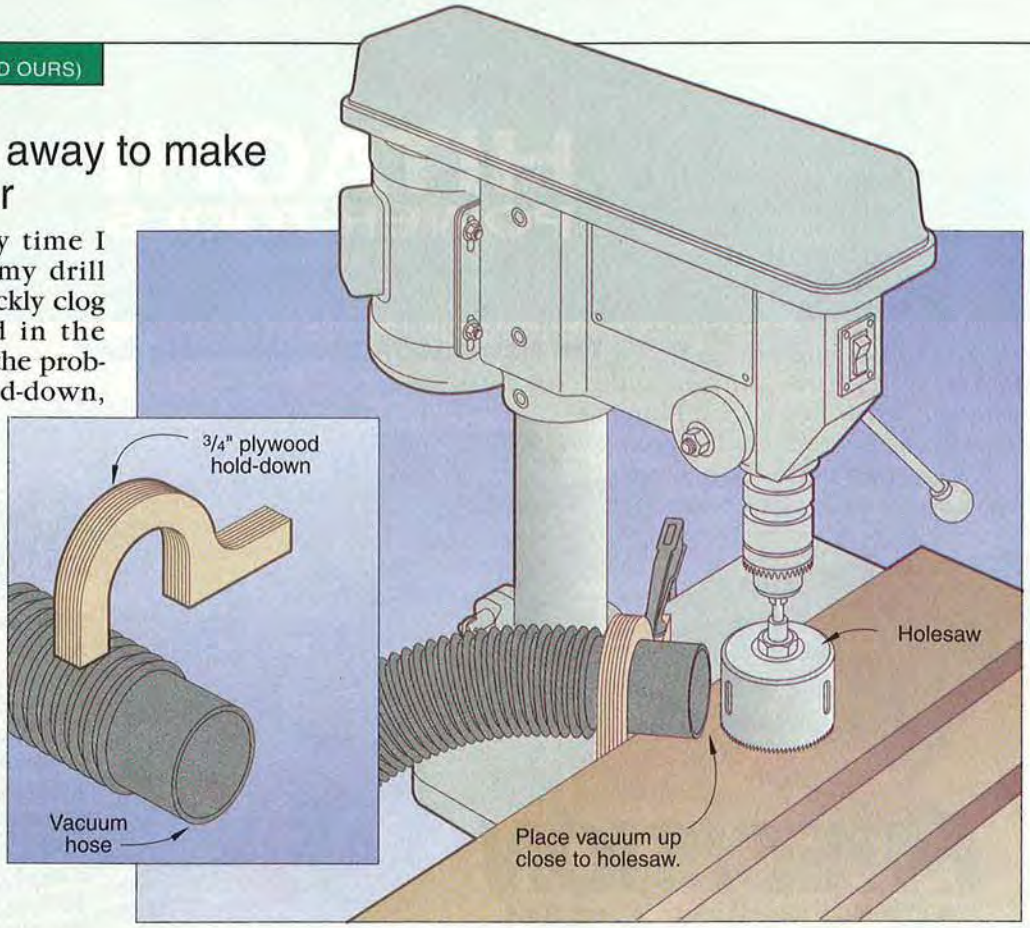
Continued from page 22

Vacuum sawdust away to make holesawing easier

I used to struggle every time I mounted a holesaw in my drill press. The saw would quickly clog with sawdust and bind in the workpiece. To eliminate the problem, I built a simple hold-down, shown at *right*, that keeps my shop vacuum hose close to the holesaw. With the hose clamped in place and the vacuum running, I make a series of progressively deeper cuts, lifting the holesaw clear of the workpiece between plunges. This clears the sawdust from the saw's teeth and makes cutting holes much faster and less frustrating.

—Jim Downing, Design Editor,
WOOD® *magazine*



Continued on page 26

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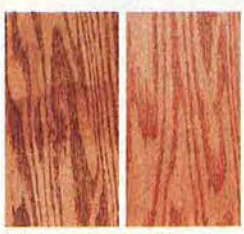

Ordinary stain *Olympic*

And it's even easier when you start with new *Olympic*® Interior Wood Stain, with its unique *Absorption Control*™ Formula that minimizes blotches, streaking and lapmarks.

Make every project easier. Call 1-800-441-9695 for a retailer near you.

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(By Frank K. Wood)

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- Ye olde English carolers, Christmas yard ornaments.
- Whizzing whirligigs like the rowing fisherman, flying eagle, flamingo, mallard duck and swimming fish.
- Christmas mouse for your house, Christmas train in case of rain!
- Santas galore.
- Shelf sitter's see-saw collection.
- Kitty door stop and four seasons perpetual calendar.
- Comical clowns, napkin rings and shelf brackets.
- Holstein cow — with udders that shudder and swinging tail too!
- Southwestern cactus collection.
- Wooden toys for girls and boys.
- And much, much more!

Build all these wooden favorites. Illustrated plans include intricately detailed patterns and complete instructions. To order a set, just return this notice with your name and address and a check for $7.99 plus $3.00 shipping and handling, and we will send you ***"405 Woodworking Patterns."*** Or, for only $9.99 plus $3.00 shipping and handling, you can get both the basic set and an extra 100 patterns.

Plus, as a purchaser of our set of ***"405 Woodworking Patterns,"*** if pleased, about every two months you will also be eligible for a first look and free trial preview of all companion pattern sets printed in the years ahead.

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You must cut out and return this notice with your order. Copies will not be accepted!

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All orders mailed by October 28, 1997, will receive a free gift, *"50 Special, Seasonal, Woodworking Patterns,"* guaranteed. Order right away!

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TIPS FROM YOUR SHOP (AND OURS)

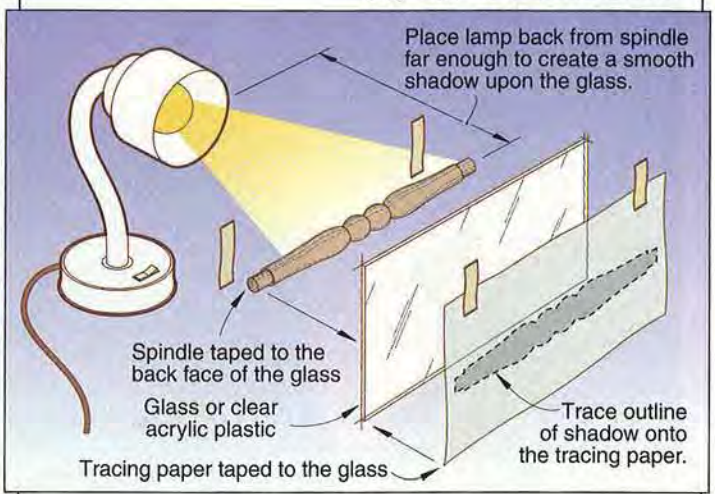
Continued from page 24

Tracing its shadow makes duplicating a spindle easier

I recently tried unsuccessfully to duplicate a small spindle from an antique toy chair. Because of its small size, measuring the spindle with dividers and calipers just wasn't accurate enough.

To make an accurate pattern, I taped the spindle to one side of a piece of glass, and taped some tracing paper to the other side. By shining a lamp on the spindle, I was able to trace the outline of its shadow on the tracing paper. Darkening the room makes the shadow easier to see.

—Jeff Gaynor, Rootstown, Ohio

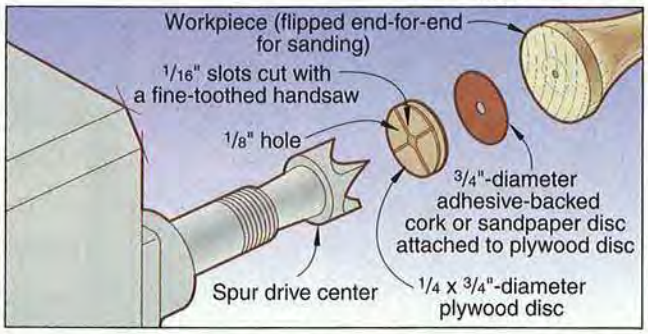

Place lamp back from spindle far enough to create a smooth shadow upon the glass.
Spindle taped to the back face of the glass
Glass or clear acrylic plastic
Tracing paper taped to the glass
Trace outline of shadow onto the tracing paper.

Flip your spindles for sanding

Sanding a spindle in the opposite direction that it was turned gives you a smoother finish. But since my lathe doesn't run in reverse, I had to come up with another solution.

I made a small plywood disc with a ⅛" hole in its center. Next, I cut two saw kerfs at right angles to each other across the face of the disc. Then, I applied adhesive-backed cork or sandpaper to the other side of the disc to give the disc a better "grip" on the end of the spindle. To use the disc, I flip a spindle end-for-end, and insert the disc between my lathe's drive center and the spindle, then sand the spindle smooth.

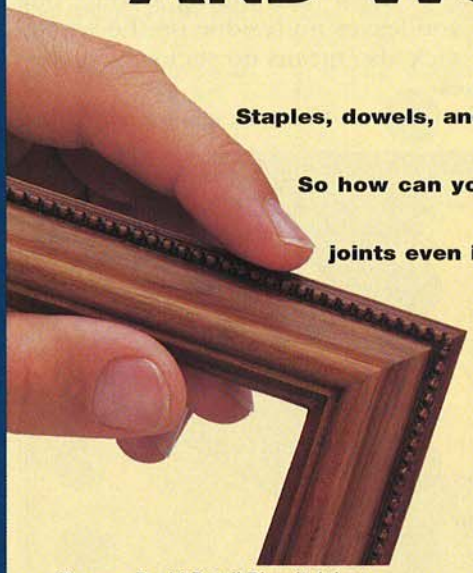
—John Saggio, New York


Workpiece (flipped end-for-end for sanding)
1/16" slots cut with a fine-toothed handsaw
1/8" hole
3/4"-diameter adhesive-backed cork or sandpaper disc attached to plywood disc
Spur drive center
1/4 x 3/4"-diameter plywood disc

Continued on page 28

THE NEW RYOBI DETAIL BISCUIT JOINER

THE DIFFERENCE BETWEEN WOODWORKING AND WOODNOTWORKING.

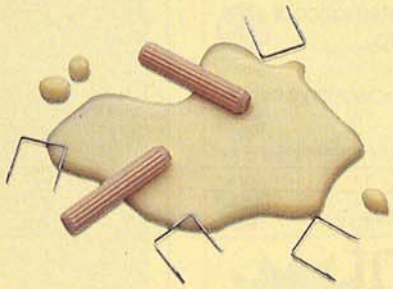


The new Ryobi Detail Biscuit Joiner uses miniature "Accu-biscuits" for neat, tight, professional joints.

Staples, dowels, and glue won't do. Standard-size biscuits won't fit.

So how can you make neat, tight, professional joints even in small stock? With Ryobi's new Detail Biscuit Joiner, that's how.

Standard biscuits stick out of small joints, and the mis-match shows, even after you trim the excess.



This compact powerhouse cuts smaller slots and uses miniature "Accu-biscuits™" to fit where standard biscuits don't. And its price is as small as its biscuits. But the Detail Biscuit Joiner is big on performance, from its beefy motor to its die-cast base and see-through fence. So see the new Ryobi Detail Biscuit Joiner at your local home center. It'll get your wood working like never before.

Ryobi "Accu-biscuits" (actual size).

The Ryobi Detail Biscuit Joiner does everything that a bigger tool does, and fits in small joints where a bigger tool won't.

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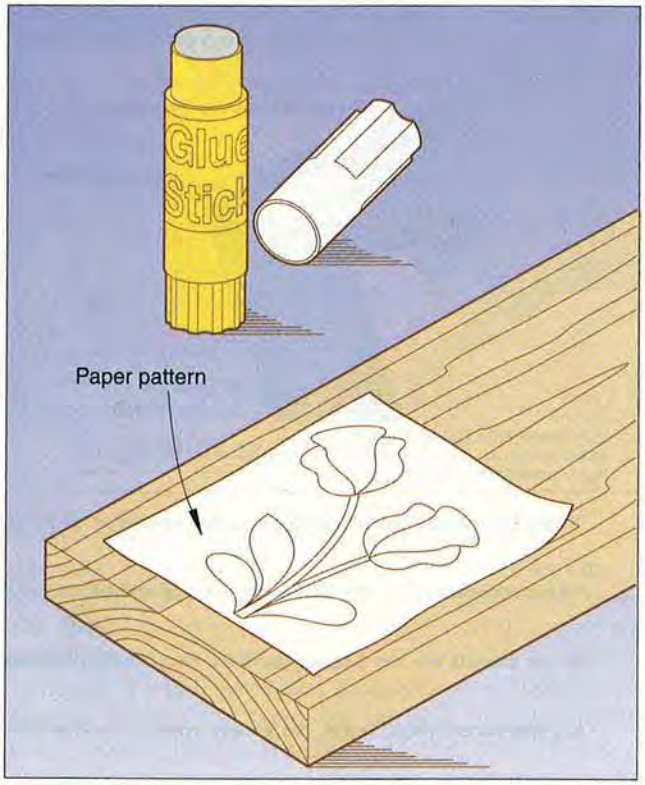
TIPS FROM YOUR SHOP (AND OURS)

Continued from page 26

Post-it glue keeps patterns in their place

I tried using spray adhesives to attach scrollsaw patterns to the wood blank, but I always found the aerosols messy and smelly to work with and hard to remove once I was done sawing. I recently found a great alternative that also lets me reposition the pattern—3M Post-It Removable Adhesive Glue Stick. I rub the glue stick on the back of the pattern and press it in place. It holds tight during sawing, but peels off easily and leaves no residue on the wood. Using the glue stick also means no sticky overspray or noxious fumes.

—Patrick W. Brown, Camp Zama, Japan



A FEW MORE TIPS FROM OUR WOODWORKING PROS

- If you want clean air in your shop, check out our IDEA SHOP™ 3 dust collector on *page 54*. It incorporates a diesel truck air filter to catch even the smallest dust particles.
- Building our cyclone dust collector doesn't require a lot of metalworking skill. Using double-faced tape to hold pieces in position for riveting is just one of many sheet metal tips you'll find on *page 8*.
- For an easy way to hang wall cabinets in your work space, don't miss our IDEA SHOP™ 3 cabinets on *page 62*.

KLINGSPOR'S

Sanding Catalogue

Klingspor's Sanding Catalogue uses only Klingspor Abrasives industrial sanding products that are known throughout the furniture and woodworking industries as the premium products for sanding and finishing. These materials will outlast, outperform and outsand any other abrasive product in this business. **Check out these deals!**

DISCS Priced in packages of 5.

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Size	**Grit**	**Price**
4½" / 8 holes	100 & finer	$1.90
	80 Grit	$2.05
	60 Grit	$2.10
	Assortment	$2.05
5" / 5 holes	100 & finer	$2.05
	80 Grit	$2.20
	60 Grit	$2.30
	Assortment	$2.20
5" / 8 holes	100 & finer	$2.05
	80 Grit	$2.20
	60 Grit	$2.30
	Assortment	$2.20
6" / 6 holes	100 & finer	$3.00
	80 Grit	$3.15
	60 Grit	$3.35
	Assortment	$3.15
6" / 8 holes	100 & finer	$3.00
	80 Grit	$3.15
	60 Grit	$3.35
	Assortment	$3.15
6" /16 holes	100 & finer	$3.00
	80 Grit	$3.15
	60 Grit	$3.35
	Assortment	$3.15

Stearate Hook & Loop		
Size	**Grit**	**Price**
4½" / 8 holes	100 & finer	$1.60
	80 Grit	$1.65
	60 Grit	$1.75
	Assortment	$1.65
5" / 5 holes	100 & finer	$1.60
	80 Grit	$1.65
	60 Grit	$1.75
	Assortment	$1.65
5" / 8 holes	100 & finer	$1.60
	80 Grit	$1.65
	60 Grit	$1.75
	Assortment	$1.65
6" / 6 holes	100 & finer	$2.25
	80 Grit	$2.35
	60 Grit	$2.50
	Assortment	$2.35
6" / 8 holes	100 & finer	$2.25
	80 Grit	$2.35
	60 Grit	$2.50
	Assortment	$2.35
6" / 16 holes	100 & finer	$2.25
	80 Grit	$2.35
	60 Grit	$2.50
	Assortment	$2.35

Heavy E-weight paper, Hook & Loop		
Size	**Grit**	**Price**
4½" / 8 holes	100 & finer	$2.75
	80 Grit	$3.00
	60 Grit	$3.35
	Assortment	$3.00
5" / 5 holes	100 & finer	$2.75
	80 Grit	$3.00
	60 Grit	$3.35
	Assortment	$3.00
5" / 8 holes	100 & finer	$2.75
	80 Grit	$3.00
	60 Grit	$3.35
	Assortment	$3.00
6" / 6 holes	100 & finer	$3.90
	80 Grit	$4.50
	60 Grit	$4.95
	Assortment	$4.50
6" / 8 holes	100 & finer	$3.90
	80 Grit	$4.50
	60 Grit	$4.95
	Assortment	$4.50
6" / 16 holes	100 & finer	$3.90
	80 Grit	$4.50
	60 Grit	$4.95
	Assortment	$4.50

Cloth PSA Discs		
Size	**Grit**	**Price**
5"	100 & finer	$3.25
	80 Grit	$3.40
	60 Grit	$3.55
	50 Grit	$3.75
	40 Grit	$3.95
	36 Grit	$4.15
6"	100 & finer	$4.65
	80 Grit	$4.90
	60 Grit	$5.20
	50 Grit	$5.55
	40 Grit	$5.85
	36 Grit	$6.20

Paper PSA Discs		
Size	**Grit**	**Price**
5"	100 & finer	$1.05
	80 Grit	$1.05
	60 Grit	$1.15
6"	100 & finer	$1.30
	80 Grit	$1.35
	60 Grit	$1.45

Assortments include one each of 60, 80, 120, 150 & 180 grit.

SHEETS Priced in packages of 5.

Silicon Carbide Wet/Dry Sheets		
Size	**Grit**	**Price**
9" x 11	220 & Finer	$2.40
	180 Grit	$2.60
	150 Grit	$2.75
	120 Grit	$2.95
	100 Grit	$3.40
	80 Grit	$3.90
4½" x 5½"	220 & Finer	$0.70
	180 Grit	$0.80
	150 Grit	$0.85
	120 Grit	$0.90
	100 Grit	$1.00
	80 Grit	$1.15
3⅔" x 9"	220 & Finer	$0.95
	180 Grit	$1.05
	150 Grit	$1.10
	120 Grit	$1.20
	100 Grit	$1.35
	80 Grit	$1.55

Aluminum Oxide Cloth		
Size	**Grit**	**Price**
9" x 11	100 & Finer	$4.90
	80 Grit	$5.25
	60 Grit	$6.35
	50 Grit	$6.80
	40 Grit	$7.30
4½" x 5½"	100 & Finer	$1.45
	80 Grit	$1.55
	60 Grit	$1.90
	50 Grit	$2.00
	40 Grit	$2.15
3⅔" x 9"	100 & Finer	$1.95
	80 Grit	$2.10
	60 Grit	$2.50
	50 Grit	$2.70
	40 Grit	$2.90

Aluminum Oxide Paper		
Size	**Grit**	**Price**
9" x 11	100 & Finer	$1.75
	80 Grit	$1.75
	60 Grit	$2.00
4½" x 5½"	100 & Finer	$0.45
	80 Grit	$0.55
	60 Grit	$0.60
3⅔" x 9"	100 & Finer	$0.65
	80 Grit	$0.70
	60 Grit	$0.75

Stearate		
Size	**Grit**	**Price**
9" x 11	100 & Finer	$2.17
	80 Grit	$2.50
	60 Grit	$2.80
4½" x 5½"	100 & Finer	$0.63
	80 Grit	$0.70
	60 Grit	$0.84
3⅔" x 9"	100 & Finer	$0.84
	80 Grit	$0.98
	60 Grit	$1.12

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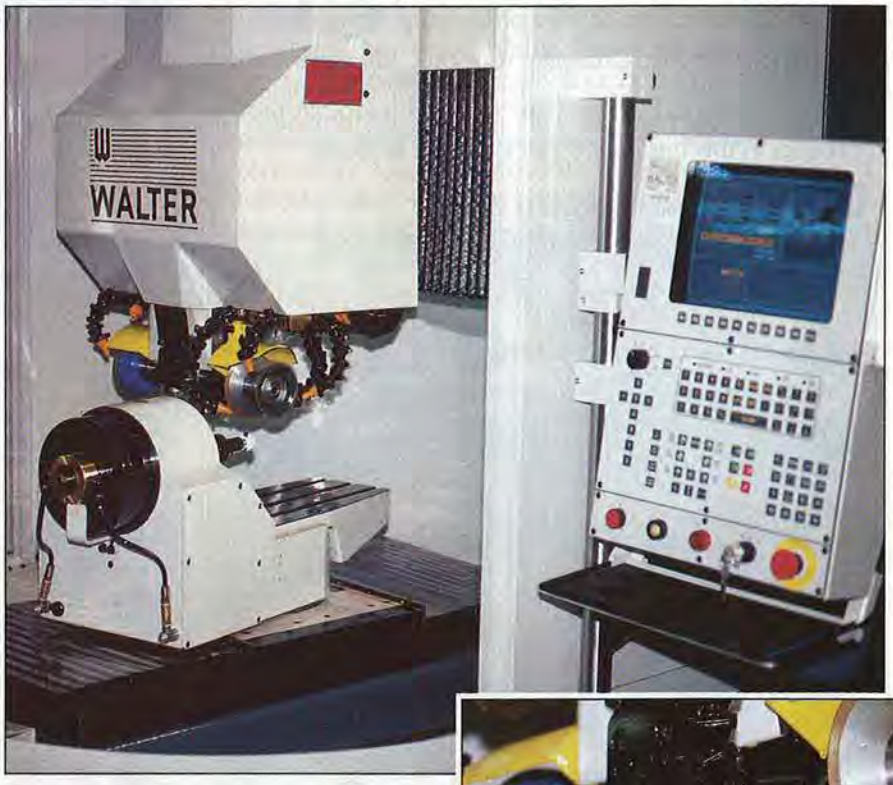
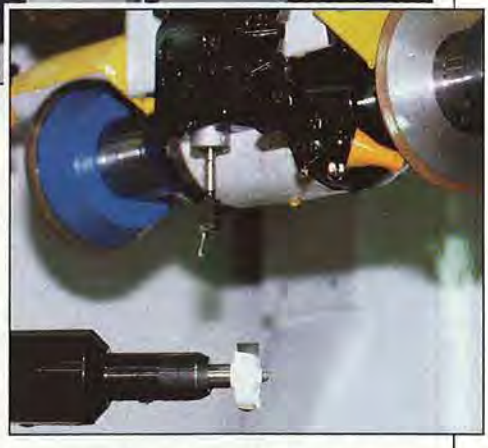
Jesada router bits perform impressively in our hands-on trial

There was a time when router bits came in one basic color: gray. Today, a brand of router bits is likely to be known as much by its distinctive color (yellow, orange, red, blue, etc.) as it is by its name. Now, there's a white router bit that goes by the brand name of Jesada. Although the name may sound foreign, the bits are made in Oldsmar, Florida. Unlike most router bit manufacturers that sell only through distributors (hardware stores, home centers, and the like), Jesada also markets its white bits directly to the consumer via mail order.

Carlo Venditto of Jesada recently invited me to visit his factory. He was anxious to show me his new, computerized machines that grind the carbide tips on router bits (see photos *right*). After taking in his entire operation, I returned with a variety of router bits that tool tester Bob McFarlin put through their paces.





Above: **State-of-the-art 5-axis CNC grinding centers put accurate and complex cutting edges on Jesada bits.**

Right: **This close-up shows a rabbeting bit and the diamond wheels that grind the carbide cutting edges.**

At the Jesada plant I saw three Walter Helitronic Power 5-axis grinding centers like the one in the photos. Unlike human-controlled grinders, the CNC (computer numerically controlled) Walter machines consistently grind complex tool geometries. That's because the machine can move the bit and grinding wheels in all five axes at one time, imparting a consistent relief angle to the grind along the curving profile of the bit. Such accurate grinding helps a bit cut efficiently, smoothly, and coolly along its entire cutting edge. As I watched bits emerge from the Walter machines, I noticed a mirrorlike finish on the face of the carbide—something I've not seen on other router bits.

Of course, this high technology doesn't mean much unless it yields bits that cut well. To find out, Bob tested these Jesada bits: ¾" flush-trim, ¾" cove, ¾" dovetail, ½" round-over, ½" rabbeting, and a rail-and-stile set. He ran them through oak, pine, and maple, checking cut quality, ease of feed, and burning.

The Jesada router bits we tested performed as well as similar bits from the top-performing brands in our last major review of 18 makes of router bits in the December 1994 issue (pages 42-47). The Jesada cove bit especially impressed us. For example, although we normally don't recommend that you make a full ¾" cove cut in oak in one pass, the Jesada bit made this cut with ease. Bob could hardly feel the bit enter the workpiece. The exceptionally sharp-edged bit removed large shavings of wood like those made by a thickness planer with fresh knives. The cut was smooth, burn-free, and with no grain tearout. If you demand high-quality router bits, you won't be disappointed with these Jesada products.

—Bill Krier, Assistant Managing Editor

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DE WALT'S NEW BENCHTOP LINE

We put the sliding compound mitersaw, planer, and scrollsaw to the test

Based on their excellent performance in our tests, DeWalt's new benchtop machinery should carve out a solid position in the marketplace. (Sliding mitersaw shown with optional work clamp and dust bag; scrollsaw shown with optional stand.)

As we reported on *page 102* of the June 1997 issue, DeWalt recently entered the benchtop machinery business by unveiling four new products. Although DeWalt delayed the introduction of its tablesaw, we recently got our hands on the other three new machines and tested them in our shop. Here's what we discovered about each:

• 12½" thickness planer. Although the totally snipe-free portable planer has yet to be invented, the DeWalt DW733 comes closer to this ideal than other machines in its price range of about $460. (Snipe refers to the slight dishing cuts made at both ends of a thicknessed workpiece.)

Straight out of the box, the DW733 produced only .0005" of snipe when we planed 3/32" of material from a 3½"-wide oak board. When we increased the cut to ⅛" deep, the machine sniped to a depth of only .001".

As the ultimate test, we planed 3/32" of stock from the face of a 2×10" oak plank. The resulting snipe was only .0015" deep. Even in this deeper-than-recommended cut, the planer exhibited ample power. We were impressed. After all, you can hardly see or feel .0005"-deep snipe, and you can remove .001" snipe with a light sanding by hand or with a palm sander. Snipe .0015" deep requires a random-orbit sander for quick removal.

Like the one on the new Delta model 22-560 portable planer, the elevating head on the DW733 locks on four steel posts. This, along with extra-long infeed and outfeed tables, contribute to the machine's low level of sniping.

We also enjoyed convenient knife changes with this machine. To replace the reusable knives, you simply align them with a pair of provided magnetic gauges and secure them with a plate and eight bolts. The knives do not shift around as you tighten the bolts. One drawback: In the event you get tiny nicks in the knives, you cannot shift them slightly to offset the nicks and avoid ridges in your workpiece. A DeWalt representative says his company is looking into possible solutions.

One unique feature we really liked about this planer: a three-position depth stop turret like those found on routers. With it you can set up the machine for repeatedly planing stock to any of three stock predetermined thicknesses. We adjusted the turret for three precise stock thicknesses—¼", ½", and ¾"—and returned to those settings time after time for consistently thick material. We would like to see this innovative feature on all planers.

Unlike other portable planers, the DW733 directs shavings off the edges of planed boards rather than dumping them straight onto the workpiece. Even so, we recommend you use the planer with an optional dust hood ($29–$39). The hood has a 4" port for connection to a dust collector, and a 2½" adapter for shop vacuums.

• 12" double-bevel sliding compound mitersaw. Here, too, it's obvious that the folks at DeWalt have done their homework. The DW708 competes admirably with the only other sliding mitersaws that bevel both left and right, the 12" Makita LS1211 and 10" Hitachi C10FS. Priced at about $680, the DeWalt costs about $100 less than

Continued on page 33

Print this article

TOOL BUYER'S UPDATE

Continued from page 30

the Makita and $60 less than the Hitachi. But, the DeWalt does not come with a dust bag ($14.95) or work clamp ($34.95), both standard on the other two saws.

Of these three saws, we rate the DeWalt the most bulletproof. That, and its well-placed carrying handle, makes it a top choice for job-site work. The Makita has a smoother slide action and comes with a better blade. For precision work in the woodshop we prefer the Hitachi. Its electronics package gives it soft starts and consistent power under varying loads.

• 20" scrollsaw. This machine is manufactured by Sommerville Design, the same company that makes the Excalibur line of scrollsaws that earned top marks in our October 1996 review of scrollsaws. The design and cutting action of the DeWalt DW788 closely matches that of Excalibur scrollsaws. And, at about $500, the DeWalt sells for hundreds of dollars less than an Excalibur.

We liked nearly everything about the DW788, especially its low vibration, generous 23¾×16" teardrop-shaped table, convenient controls, and the steady stream of power provided by its AC motor at all cutting speeds from 400 to 1750 strokes per minute. The convenient blade-tensioning mechanism and an upper arm that lifts straight up 3½" combine to make blade changes easy. With proper adjustment and the right blade, the saw capably handled every cut we made in thin (¼" birch plywood), thick (2" oak), and stacked materials. It doesn't cut as fast as the C-armed Delta Q3, but it delivers smoother results.

The thumbscrew-operated quick-change blade clamps hold blades securely, but the bottom clamp tends to bend the blade slightly when tightened. A drop of oil on the swivel end of the thumbscrew fixed the problem.

Written by Bill Krier
Product Testing: Bob McFarlin
Photograph: John Hetherington

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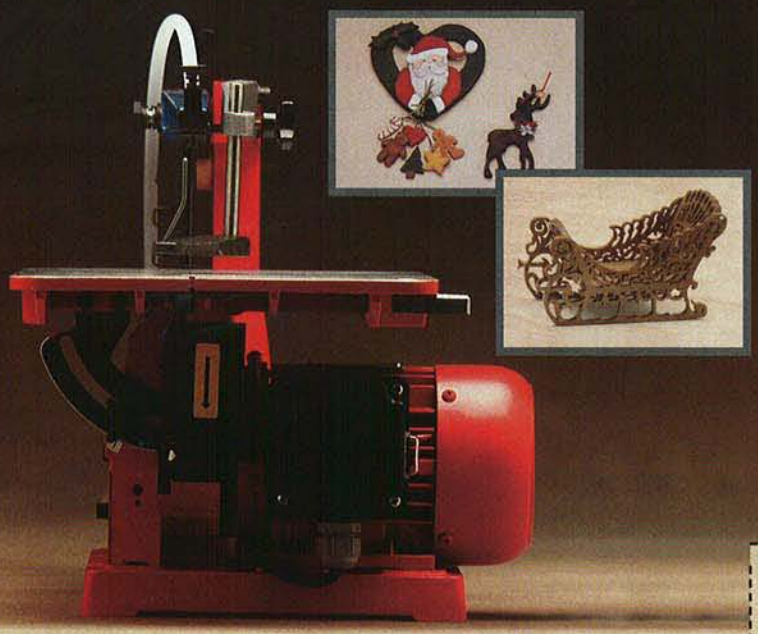

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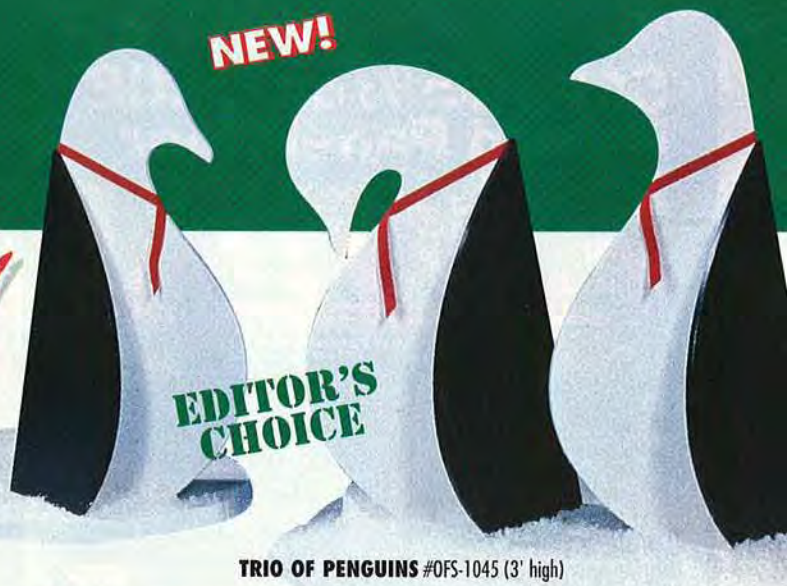

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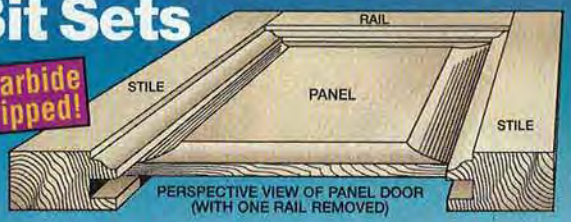

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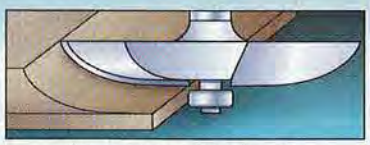

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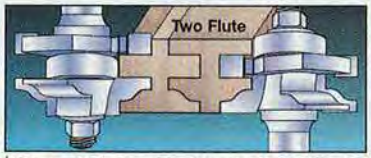

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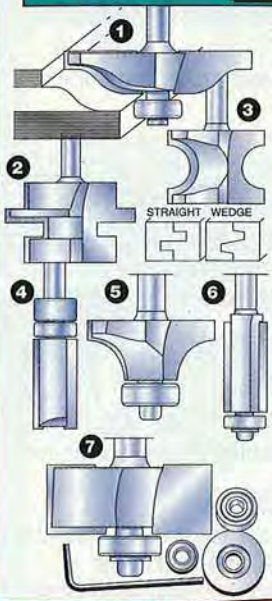

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Change ball bearing guides and select 4 depth of cuts: 3/8", 7/16", 5/16", 1/4". Set: 1/4" shank rabbeting bit, 4 bearings (3/8", 1/2", 5/8", 3/4") and hex key.
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Rout into those tight spaces and sharp corners! These professional grade router bits have smooth running **Brass Pilots**, measuring only 5/32" (approx.) in diameter, instead of the usual 1/2" ball bearing. Save hours of hand sanding or filing and get a more consistent edge.

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COMMON SENSE WOODWORKING

Advice you can count on from the *WOOD*® magazine shop

Top-drawer project builders and designers Jan Svec, left, and Chuck Hedlund bring years of experience to the *WOOD*® magazine shop, as well as to this article. Their tips for running a safe and efficient work space aim at helping woodworkers at all levels.

Need help organizing your shop? How about advice on what books to buy for your home woodworking library? Here, you'll find a gold mine of such information aimed at making you a more complete craftsman. You'll benefit from 367 cumulative years of woodworking experience by our staff and the best of 100 issues of our magazine.

Print this article

Build a powerful reference library

Regardless of skill level, every woodworker needs a reliable resource of books, magazines, catalogs, patterns, and other printed materials to provide help. Here's a list of references we like (and use) at *WOOD* magazine.

BOOKS:

1. *Understanding Wood Finishing* by Bob Flexner, Rodale Press, Inc., 1994. (The best book we have found on covering every aspect of wood finishing.) Available from *The Garrett Wade Tool Catalog* (see catalog list on *page 38*).

2. *Identifying Wood* by R. Bruce Hoadley, Taunton Press, Inc., 1990. This book delves into the subject of wood technology, helping you identify over 180 species of wood from grain appearance and cellular structure using a small handheld magnifying glass.

Available from *Constantine's* catalog (see catalogs *below*).

3. *Knowing Your Trees* by G.H. Collingwood and Warren D. Brush, The American Forestry Association, 1979. Here, you'll find a great old standard for identifying North American trees.

4. *Architectural Graphic Standards,* 9th ed. by Ramsey/Sleeper, John Wiley & Sons, Inc., 1994. The bible for architects, this publication includes chapters on ergonomically proven dimensions for all types of furniture and cabinets. Though pricey, you'll find this publication helpful for designing projects.

5. *Pocket Ref* by Thomas J. Glover, Sequoia Publishing, Inc., 1995. This handy all-around reference provides valuable information on such subjects as glues, saw blades, woodworking math, hardware, metric conversions, to name just a few subjects. Available from *Woodcraft* catalog (see catalogs *below*).

CATALOGS:

Cherry Tree, 800/848-4363
Constantine's, 800/223-8087
Lee Valley, (Canada) 800/267-8767; (U.S) 800/871-8158
Meisel Hardware Specialties, 800/441-9870
MLCS, 800/533-9298
The Garrett Wade Tool Catalog, 800/221-2942
The Woodworkers' Store, 800/279-4441
Woodcraft, 800/225-1153
Woodhaven, 800/344-6657
Woodworker's Supply, Inc., 800/645-9292

WORKSHOP POSTERS:

GUIDE TO ROUTER BITS, October 1994, issue 73. This poster shows a full range of router bits and the profiles they cut, plus routing tips.

GUIDE TO WOODWORKING SCREWS, October 1995, issue 82. This chart displays types available, discusses uses, lists head sizes, includes screwing tips, and provides sources.

GUIDE TO DRILL BITS, October 1996, issue 91. Here, you'll find a complete lineup of drills and drill-press accessories, along with a drill-press speed chart. Drill-bit characteristics cover steel, coatings, and points. Tips and sources complete the chart.

Note: *Each of the three posters is included in a back issue of WOOD® magazine. To order a back issue, ask for the appropriate issue, and send $6.95 to WOOD Back Issue Sales, P.O. Box 9255, Des Moines, IA 50306, or call 800/572-9350.*

Tool talk that's on the level

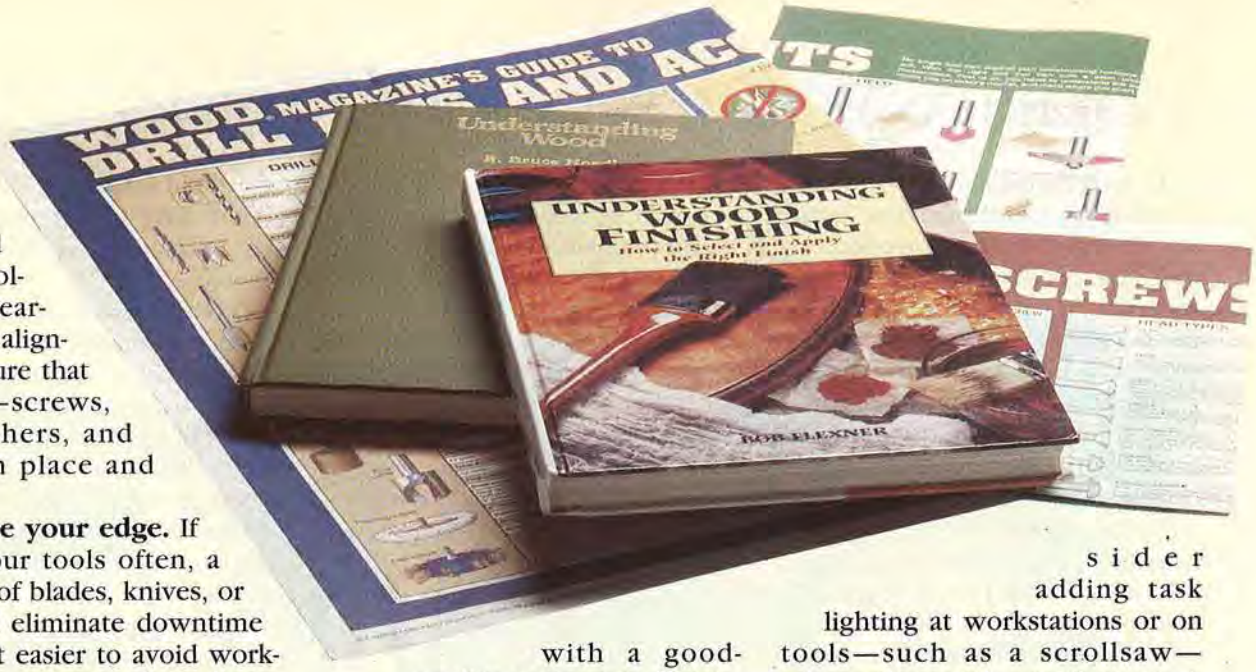
Accurate, dependable tools lie at the center of every craftsman's woodworking efforts. Consider these points the next time you want to make quality improvements.

•Invest in some good layout and measuring tools. We have Starrett 6" and 12" combination squares in our shop. Equip the 12" square with a center head. Every shop should have a set of stainless steel bench rules. We looked at everything and bought 6", 12", and 24" woodworking rules from Hartville Tool at 800/345-2396. When you consider the cost, keep in mind that not only are these the tools you will use for marking and measuring, but they are also the tools that you can depend on when you set up and calibrate your woodworking machinery.

Finally, get a good compass that will hold a common pencil. We have two—an 8" and a 16" Workshop Pencil Compass from *The Garrett Wade Tool Catalog.*

•Buy your tools wisely. Refer to magazine tool reviews, particularly those that do detailed analyses of tool features and performance. Keep your requirements, budget, and level of use in mind and never compromise on quality. To find *WOOD®* magazine's tool reviews, look for the nine-issue index published in each June issue, or check our most complete and up-to-date index on the internet at http://woodmagazine.com.

•Tune up your tools. Never assume that you can use a tool right out of the box. This goes for hand tools and power tools alike. Hand tools usually come "factory sharp" and will need to be fine-sharpened and honed. For power tools, follow the setup instruc-



tions in the manual, and check all tolerances, clearances, and alignments. Ensure that hardware—screws, bolts, washers, and nuts—is in place and tightened.

•Don't lose your edge. If you use your tools often, a second set of blades, knives, or cutters will eliminate downtime and make it easier to avoid working with dangerous dull edges. For most of us, it's better to rely on a professional sharpening service. Clean the pitch off blades or cutters before sending them out. (We use oven cleaner for this.)

•Keep your crosscuts square. Get an extra miter gauge for your tablesaw and carefully set it at 90° to the blade. In fact, lock it into this position with an extra nut. Now, no matter what you do with your other miter gauge, you'll always be able to come back to that perfect crosscut.

•Make a good tool better. Most drill presses are still not designed for woodworkers. Build an auxiliary table with an adjustable fence for yours. We featured one in February 1996, issue 86. Order the back issue by calling 800/572-9350, or purchase the ready-to-assemble WOODKIT® by calling Schlabaugh at 800/346-9663.

•A jointer is for more than edges. Face-jointing is the key to everything from flat tabletops to straight and true doors. Buy the longest bed and widest cutterhead you can afford.

•Run a clean operation. Periodically clean all the sawdust out of your tools. Blow out portable tools after each use with compressed air. Lubricate your stationary tools at least once a year and keep the tables waxed with a good-quality paste wax. If your shop is prone to dampness or high humidity, run a dehumidifier to ward off rust.

Shop organization: Get it right and keep it that way

Aside from being dangerous, a cluttered, poorly organized shop can cause you to lose hours—even days—of valuable woodworking time while you hunt around for tools or clear a space for a glue-up. That's why thoughtful shop planning will serve you well for a lifetime of successful craftsmanship.

•Power up for performance. While a 15 amp circuit is adequate for lighting, you'll need at least two 115 volt, 20 amp circuits for benchtop, small stationary, and portable power tools. Place outlets every 48" along the walls; we like to have them 48" off the floor. Large stationary tools need dedicated outlets. If any can be wired for 220V, we like to do so.

•Bright ideas for brilliant work. Figure shop lighting by keeping in mind that you need 20,000 lumens for every 100 square feet of floor space and that a standard 48" fluorescent tube puts out between 2,000 and 3,000 lumens. (See the bulb package for specific output.) Buy fixtures according to bulb needs, and consider adding task lighting at workstations or on tools—such as a scrollsaw—where the work requires maximum visibility.

•Arrange your primary tools (radial-arm saw, mitersaw, tablesaw, jointer, and planer) for efficient material handling. You should be able to move a piece of stock from cutoff through jointing, planing, and ripping within the same localized area in the shop. Park other machines (bandsaw, router table, drill press, lathe, etc.) away from this cutting and planing work area. Put them on mobile bases so you can easily and quickly pull them out when needed.

Note: *See* page 66 *for our mobile base plan.*

•Make room for storage and a sturdy workbench. Organize your storage in work centers so that tools and accessories that go together stay together and are within easy reach.

Make workshop safety priority one

Commonsense woodworking means taking all of the proper precautions before beginning any machining or finishing task. Here's what we mean.

•Protection you can buy. Invest in a comfortable pair of safety glasses and wear them whenever

you enter the shop to work. Combat damaging machine noise by wearing hearing protection that has an NRR (noise reduction rating) of at least 25 decibels. (See the package.)

Keep two respirators on hand—a lightweight, comfortable one for common shop dust, and a heavy-duty model that employs organic vapor cartridges.

Finally, pick up several pairs of inexpensive disposable latex gloves for handling glues, solvents, stains, and finishes.

•**Dress down.** Remove rings and watches, and roll up loose sleeves when working around machinery. Tuck long hair into a hair net or a snug-fitting hat.

•**Keep a tidy shop.** Before any machining operation, sweep up sawdust and pick up scraps and sawcuts from the floor. Keep machine table surfaces free of cutoffs, hardware, hand tools, etc.

•**Conduct a no-nonsense hands-off policy.** Be sure to have at least two feather boards that fit your tablesaw, bandsaw, and router table. We like Universal feather boards (catalog #801-407) from *Woodworker's Supply*. (See *page 38.*)

Also, pick up a variety of pushsticks and pushblocks for different tools and tool operations.

•**Guard against danger.** Seriously consider buying an aftermarket tablesaw blade guard for convenience and added safety. While you're at it, equip your tablesaw with a knee-operated panic switch. Get an outfeed table for better control of material after you machine it.

•**Be trigger happy.** We prefer routers with trigger switches, since you can shut them off instantly without having to take one hand off the tool during machining operations.

Our finishing secrets

Never rush finishing a project that you took precious time to make. Often, a quality finish will draw attention as much as a project's design. Here's what works for us.

•**Sanding solutions.** When sanding, use progressive sandpaper grades of 100-, 150-, and 220-grit. Don't skip grades since each grade removes scratches left by the previous coarser grade. For a really fine finish, nothing beats sanding finer grades with a cork-faced block.

•**Testing, testing.** Test all stains and finishes on scrap of the same species prior to using them on the completed project. Projects to be stained should be sanded more carefully than clear finished projects since surface flaws tend to become accentuated. In general, we avoid using any stains.

•**Brush basics.** Use a natural bristle brush for oil-based finishes and a synthetic bristle brush for water-based finishes. Always cut in on the wet surface and avoid rebrushing when the finished surface becomes tacky.

•**Show off with spray.** Spraying provides the most level finish; try a high-volume, low-pressure unit for less wasteful overspraying. Clean the sprayer well after using.

•**See what you're doing.** When applying a finish, use low-angle task lighting to spot runs or sags.

•**Say no to dust.** Keep the finish, brush, and air as clean as possible. Since most of us (we in the *WOOD®* magazine shop included) don't have a finishing room, dust will settle in the finish as it dries. If a less durable finish will do, use a Danish-oil finish. Using this lets you wipe down and buff the workpiece before the finish dries completely. A lacquer or polyurethane finish that gets dust in it while drying can be rubbed out with 400-grit or 600-grit wet-dry sandpaper; then you can buff back to a satin sheen with gray or white Scotch-Brite pads.

Written by Jim Harrold with the WOOD magazine staff; special thanks to Jan Svec and Chuck Hedlund

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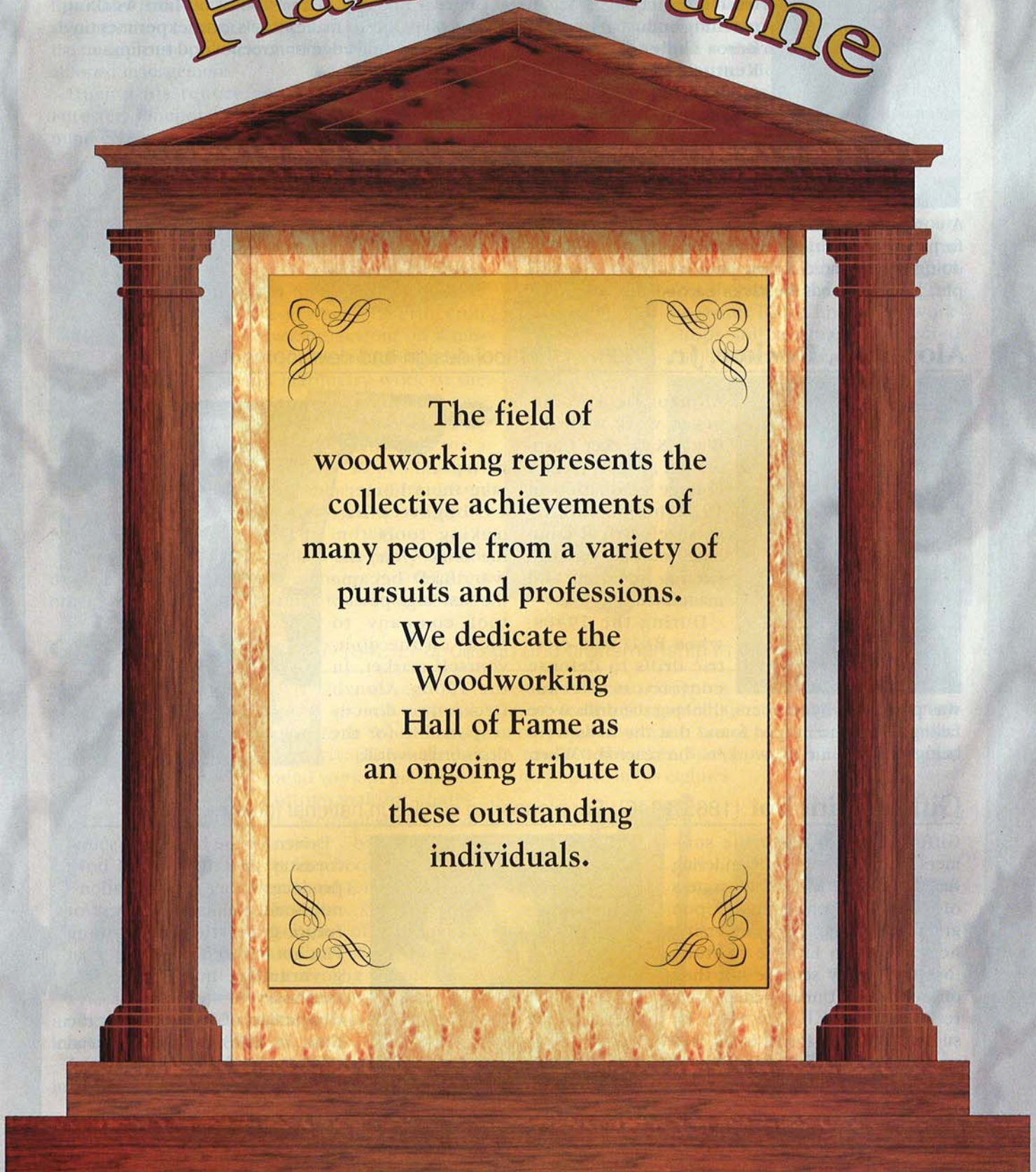


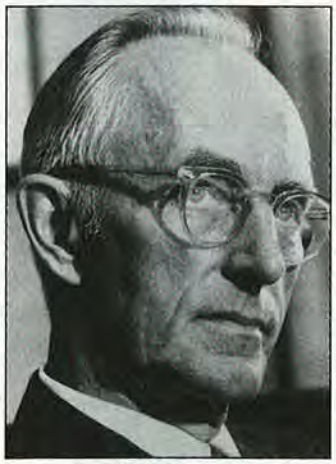
The field of
woodworking represents the
collective achievements of
many people from a variety of
pursuits and professions.
We dedicate the
Woodworking
Hall of Fame as
an ongoing tribute to
these outstanding
individuals.

Rude Osolnik (1915-): For design, craftsmanship, and education in woodturning

In 1937, Rude Osolnik, fresh from college, began teaching industrial arts at Berea College, in Berea, Kentucky. Eventually, he founded the furnituremaking program there.

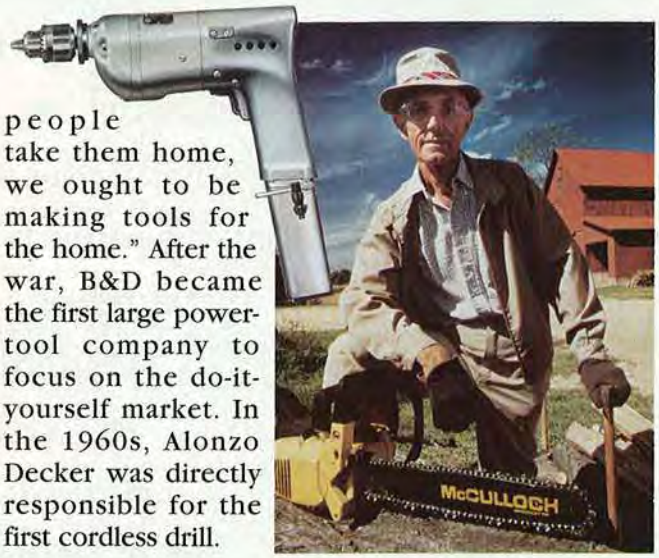
Although an accomplished woodworker, Osolnik's greatest impact has been in woodturning. A composer on the lathe, he first wedded classical form and proportion to modern simplicity. In so doing, he updated a long-practiced craft. His simple, hourglass candlesticks earned the Award of Good Design from the Furniture Association of America in 1955. The 1960s saw him working with plywood to make bowls, and experimenting with the natural-edge on green-wood turnings.

Alonzo G. Decker, Jr. (1908-): For tool design and development



Alonzo Decker, Jr. began work with the Black & Decker Corporation at age 14. After college graduation in 1929, he joined B&D as an electrical engineer, focusing on engineering, research, and manufacturing.

During the 1940s, when B&D sold electric drills to defense contractors, Decker was perplexed by reorders, thinking the drills were failing. When he instead found that the tools were being taken home by workers, he reacted: "When people take them home, we ought to be making tools for the home." After the war, B&D became the first large power-tool company to focus on the do-it-yourself market. In the 1960s, Alonzo Decker was directly responsible for the first cordless drill.



Gifford Pinchot (1865-1946): For pioneering service in national forestry

Gifford Pinchot spent the summers of his early years wandering the forests and fishing the waters of his native Connecticut. Upon graduation from Yale University, he traveled to Europe to study forestry, a new science not then offered in the United States. After returning to the U.S. in 1891, he surveyed private forest lands, but soon undertook their management with his new knowledge.

Driven by the belief that sound forestry practices could both produce timber for the nation's needs and maintain the forest for future generations, the young Pinchot realized, however, that government intervention was necessary to stop the massive destruction of U.S. forests at the time. In 1898, he became head of the new federal Division of Forestry, then spearheaded the

establishment of the U.S. Forest Service within the Department of Agriculture and was named its first Chief Forester. In this leadership position, Pinchot set the initial multiple-use policy for national forest management.

During his tenure as Chief Forester, Pinchot increased the number of national forests from

32 to 149, for a total of 193 million acres. He became President Theodore Roosevelt's top conservation advisor. In 1910, to explore the most efficient and wise use of the wood resource, he set up the U.S. Forest Service's Forest Products Laboratory in Madison, Wisconsin, still the only research facility of its magnitude in the world.

Silas Kopf (1949-): For design and craftmanship in marquetry

Following an apprenticeship with renown furnituremaker Wendell Castle from 1974 to 1976, Silas Kopf, an architecture graduate of Princeton University, set out on a mission to introduce the inlay and marquetry work of the European Renaissance to 20th-century America. After studying marquetry for a year at the Ecole Boulle, in Paris, Kopf's illusions created on the furniture and cabinetry of his design earned him a craftsman's fellowship from the National Endowment for the Arts in 1988.

His continuing work in applied marquetry of hundreds of native and exotic veneers has inspired other wood artisans to enhance their projects with

the technique. Kopf, however, remains the master of this unique skill, his marquetry continuing to fool the eye of the beholder. Yet, he shares his techniques in workshops and seminars at selected facilities across the country.

Gustav Stickley (1857-1942): For design and craftsmanship in furnituremaking

In 1873, at age 16, Gustav moved with his family from Wisconsin to Pennsylvania where he found work in his uncle's factory making chairs. An accomplished woodworker by age 21, Stickley became the manager and foreman. Soon, though, spirited by thoughts of the English Arts and Crafts movement, he and two younger brothers set out in the retail furniture business selling simple chairs inspired by Shaker design.

In 1898, Stickley toured Europe and was impressed with Arts and Crafts furniture. Upon his return, he began designing basic, almost primitive, furniture featuring exposed joinery that became immediately popular with the American public as "craftsman." A true woodworker, Stickley was still experimenting with finishes in his eighties.

Continued

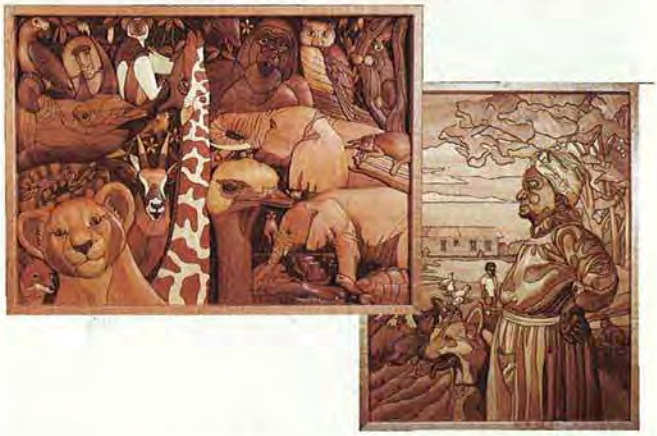
Judy Gale Roberts (1956-): For design, craftsmanship, and education in intarsia

Judy Gale Roberts was born in Houston, Texas. Following high school, she attended Houston's Museum of Fine Arts School, but eventually elected to study art "hands-on" with her artist/sculptor father, Pat Dudley Roberts. Together, they created mosaic murals, etched glass, and sculptures in metals for architects and designers. Under her father's tutelage, she learned to cut and fit wood as well as the basic elements of good design.

In 1984, Judy Gale Roberts moved to Florida with husband-to-be Jerry Booher. There she refined the design elements of her work in wood, which is a modern-day interpretation of a 15th-century Italian art form called intarsia.

The intarsia of Judy Gale Roberts differs from the original in that she sculpts each wooden piece to a third dimension by sanding. Only one species of wood—Western red cedar—provides the differing colors and tones.

The publication of Roberts' work in a national woodworking magazine brought her widespread attention in 1988. The demand for her designs gradually prompted her to refocus on the drawing board, a move that fostered an intarsia video and three instructional books. In less than a decade, her name has become synonymous with intarsia.



Wharton Esherick (1887-1970): For pioneering effort in designer woodworking

Although urged to enter a profession, Wharton Esherick instead chose a manual training school. He later studied art and developed a passion for it. In 1919, his art work led him into woodworking, which enabled him to carve frames for his paintings. During the 1920s and 1930s, he combined his artistic talent with woodworking and turned to wood sculpture.

In the late thirties, Esherick concentrated on furniture. His work—as expressed in furniture and home interiors—went through several phases, but is best remembered as having flowing lines with no sharp edges. This "modern" style went against the design of the times, but was user-friendly and space-efficient, and built with simple techniques.

Esherick welcomed students into his shop and urged them to develop their own style, free from the tradition. His influence was felt by many of today's top designer/craftsmen. The American Institute of Architects posthumously awarded him the gold medal for craftsmanship in 1971.

Frank Knox (1903-1987): For excellence and education in ornamental turning

Ornamental turning, the art of mechanically embellishing turned objects on a specialized lathe, was for all purposes a lost 19th-century art when Frank Knox managed to acquire an original Holtzapffel machine in 1963. Built in 1853, the complicated English lathe was one of only 300 known to exist.

Knox, a semi-retired management consultant who had studied cabinetry, spent the next three years applying himself to the art of ornamental turnery. After mastering most of the necessary skills, he began producing plates, cups, bowls, boxes, and other objects of his design. By 1983, he was recognized as a leading practitioner of the art by the Society of Ornamental Turners.

Believing that ornamental turning would strengthen an increasingly technical society's respect for the craftsman's manual skills, Knox decided to explain the mastery of the Holtzapffel in his book, *Ornamental Turning, a Practical and Historical Approach to a Centuries-Old Craft.* Published in 1986, it stands as the only in-depth guide to the art.

Lemuel and Stephen Ward (1896-1984) (1895-1976): For pioneering the art of decorative wildfowl carving

The Ward brothers began their decoy carving on Maryland's Eastern Shore, making hunting decoys to aid in bagging birds for market or table. Working as a team to produce in volume, Lem Ward did most of the carving and Steve Ward did the painting. Presidents Franklin D. Roosevelt, Harry Truman, and Lyndon Johnson were said to have hunted over the Ward brothers' decoys.

Although Lem Ward is reported to have made a few ornamental decoys on special order as early as the 1920s, it was in the early 1950s that he decided to make ducks that looked like ducks. So began the popular art form of decorative wildfowl carving.

By 1965, Lem and Steve Ward were making highly decorative carvings of almost every species of American duck, Canada geese, game birds, and some shorebirds. Many Maryland area carvers that associated with them also began to produce collectible birds. The mecca of decorative wildlife carving, the Ward Foundation, in Salisbury, Maryland, was named in their honor. In 1974, Salisbury College awarded them honorary doctorates.

For more about the Woodworking Hall of Fame™ *and how you can input, turn to* page 84.

WELCOME TO

How many woodworkers do their woodworking in a basement shop? Plenty. But even if that's not where your shop is, you'll find all kinds of small-space solutions in the 12×16' room we call IDEA SHOP® 3. No doubt you'll want to adapt many of them to your home workshop. That's the idea.

We couldn't help doing it again. Creating a new shop is always fun, as well as challenging, and does it ever generate ideas.

The space that became IDEA SHOP 3 represents a room of the size that you'll find in many basements. Because of its location, an effective, yet quiet, dust-collection system was of prime importance. Then, of course, there was the limited space to deal with. But as you'll find out, our design team

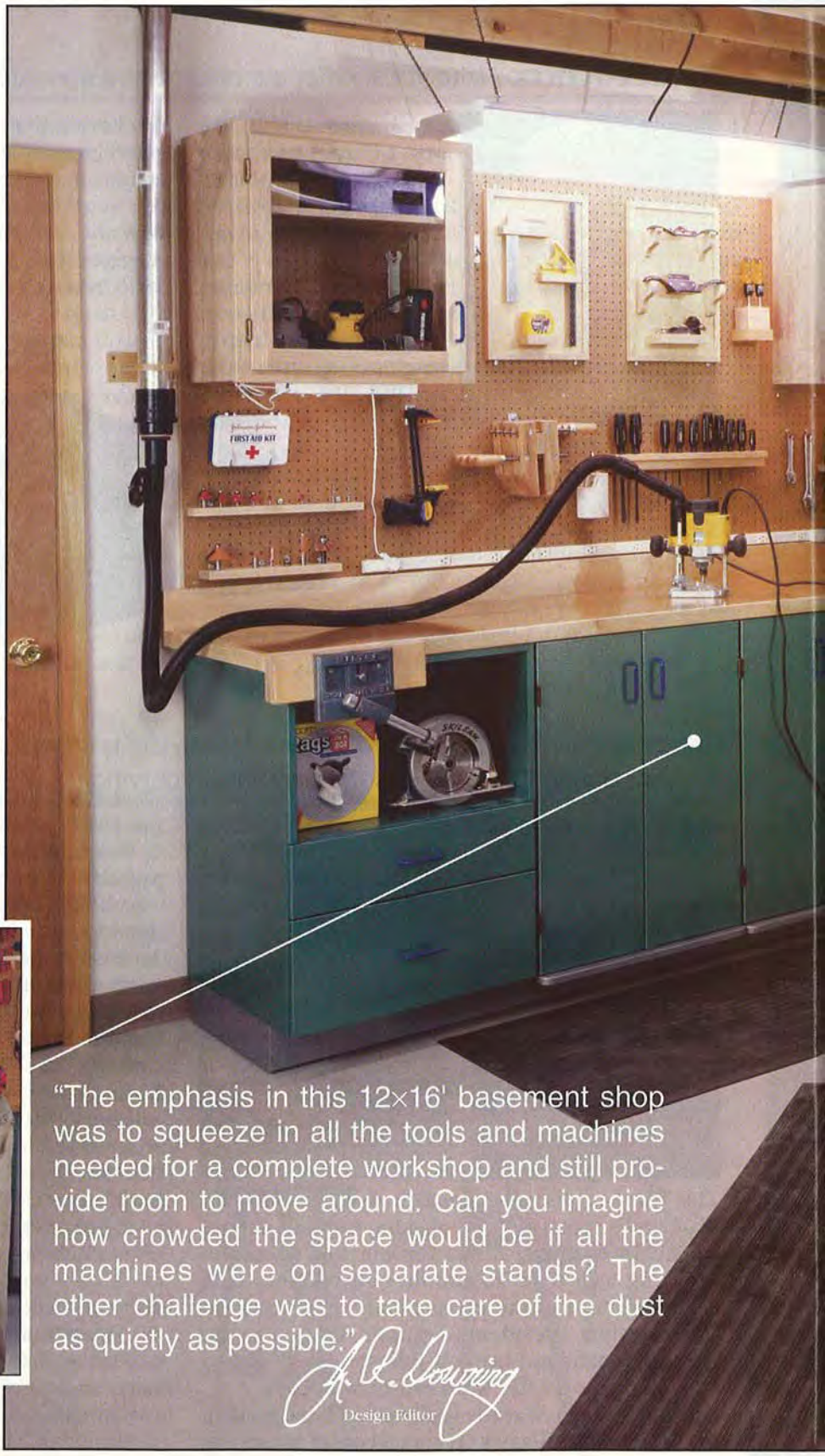
Continued

A TRIBUTE TO THE BASEMENT WORKSHOP

IDEA SHOP® 3

FROM THE EDITORS OF *WOOD*® MAGAZINE

Editor Larry Clayton demonstrates the space-saving, flip-up storage of the router table beneath the workbench.

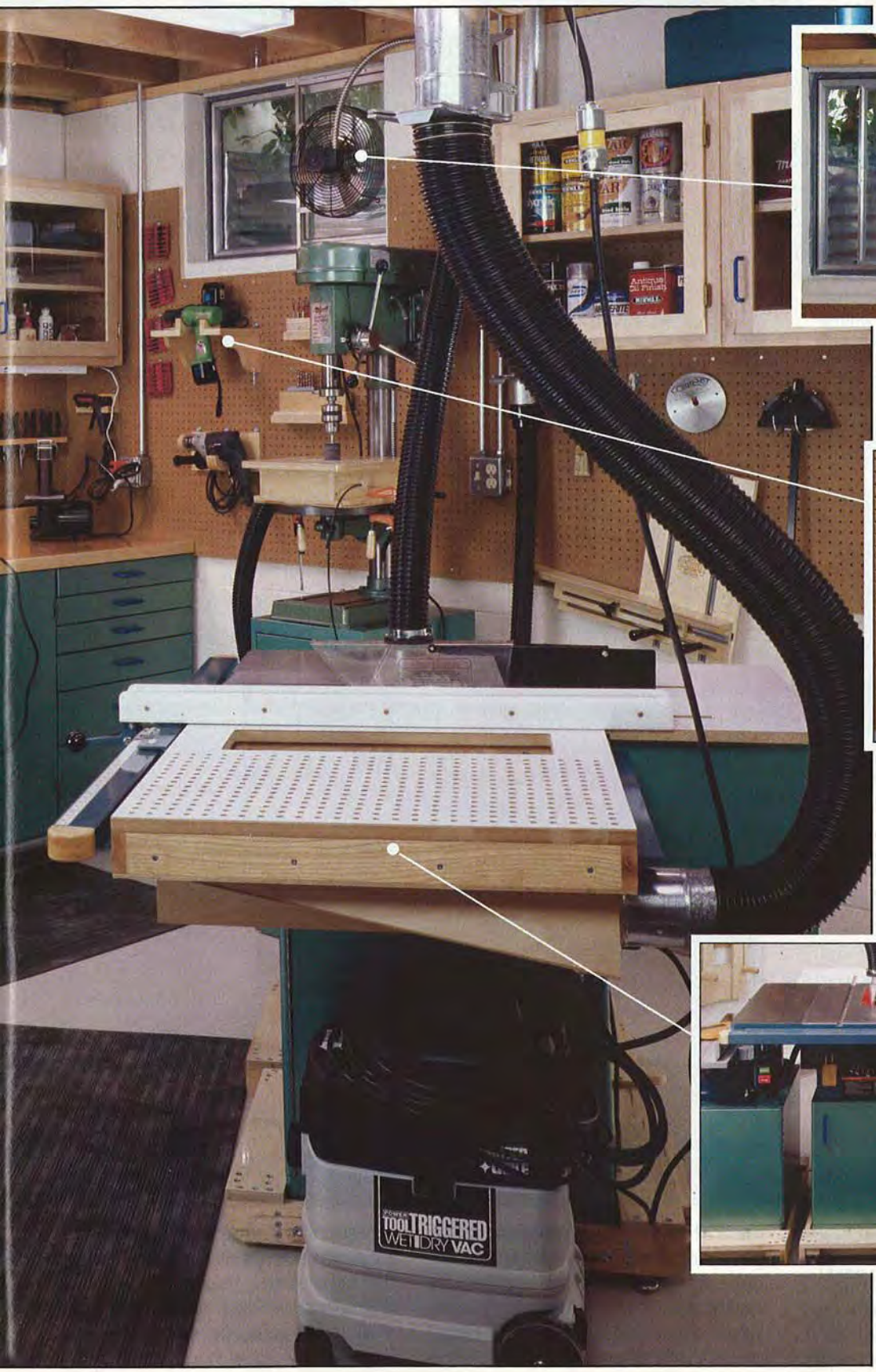


"The emphasis in this 12×16' basement shop was to squeeze in all the tools and machines needed for a complete workshop and still provide room to move around. Can you imagine how crowded the space would be if all the machines were on separate stands? The other challenge was to take care of the dust as quietly as possible."

A. R. Downing

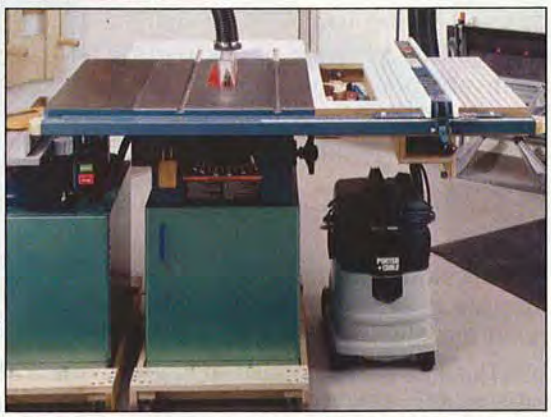
Design Editor

IDEA SHOP 3®



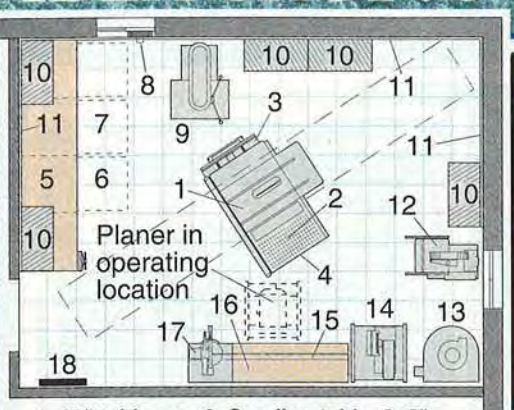
We outfitted a window with a fan designed for dusty conditions. It doesn't block light and the window still opens.

This custom-made, maple tool holder cradles a cordless drill, charger, and an assortment of driving bits. The design adapts to many portable power tools.



The tablesaw's extension table doubles as a sanding table. Holes lead to an airtight collection box beneath with a 4" dust-collection port.

Imagine having a shop with all



1. 10" tablesaw 2. Sanding table 3. 6" jointer 4. Shop vacuum 5. Workbench 6. Router table 7. Scrollsaw 8. Exhaust fan 9. Drill press 10. Modular wall cabinets 11. Perforated hardboard 12. 14" bandsaw 13. Cyclone dust collector 14. Planer/sander stand 15. 36" lathe and cabinet 16. Stock storage on wall 17. Mitersaw 18. Floorsweep. ***(For a complete list of tools, see* page 92.*)***

All of the tool holders in the shop's many perforated hardboard panels are held in position with sturdy, yet easily removed, sheet-metal screws.

came up with doable solutions. In this and future issues, we'll share them with you by presenting plenty of plans and step-by-step instructions so that you can adapt them to your home workshop.

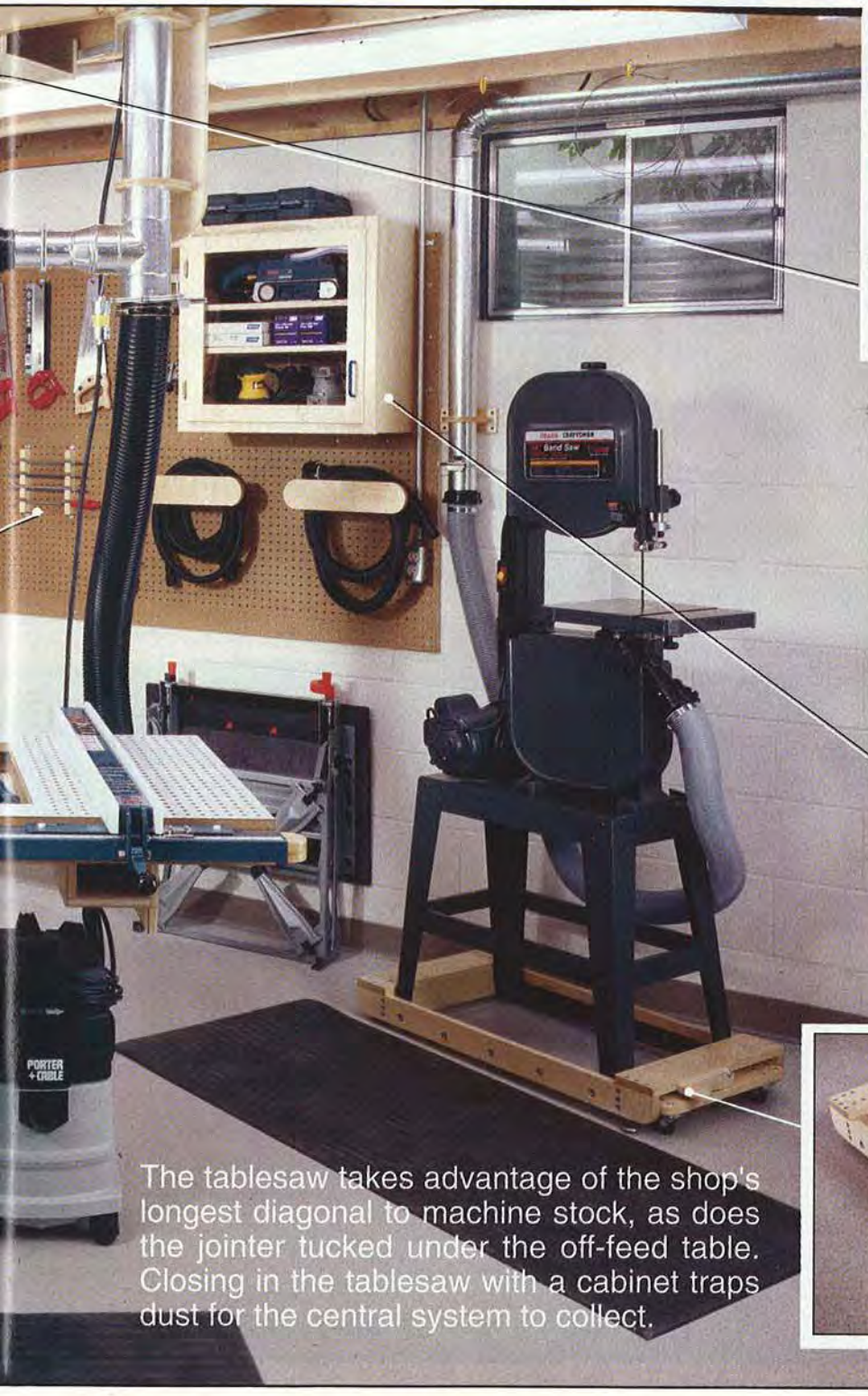
Out-of-the-way storage

Storage received more than a passing nod. And here, it consists of more than wall-mounted perforated hardboard (although there's plenty of that, with custom-made tool holders as well).

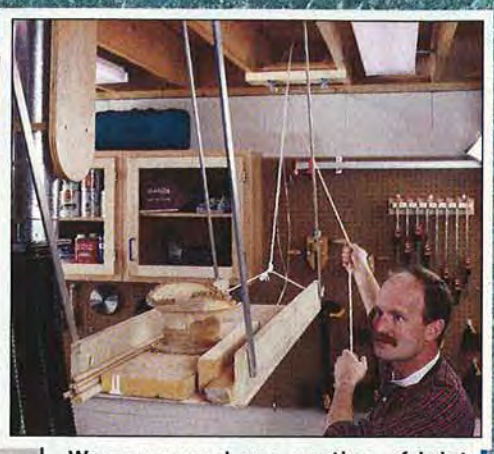
The Plexiglas-fronted cabinets hanging about let you see their contents at a glance. But, you're not stuck with their placement once they're up, as shown in the photo *opposite page.* Keeping the cabinets toward the top of the room also gives you more usable work space below, and that really counts in a small room.

A host of full-extension drawers in the workbench provide storage for hand tools, hardware, measuring devices, and all those items you need to keep track of. The tablesaw's extension table pro-

the tools, yet with room to work.

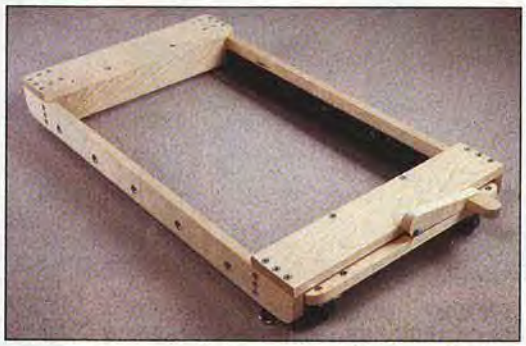


The tablesaw takes advantage of the shop's longest diagonal to machine stock, as does the jointer tucked under the off-feed table. Closing in the tablesaw with a cabinet traps dust for the central system to collect.



We even used one section of joist space to house a handy pull-down storage unit. Its balanced pulley system won't dump the contents.

A bevel-ripped support strip on the back of each cabinet allows them to be easily moved. A mating strip rides atop the wall panels.



Built of maple and heavy-duty fasteners for industrial strength, the mobile bases for each of the shop's woodworking machines have foot-operated locking mechanisms. The wooden lever uses a cam to rotate the stop against the castors. You'll find complete how-to instructions for building them on *page 66*

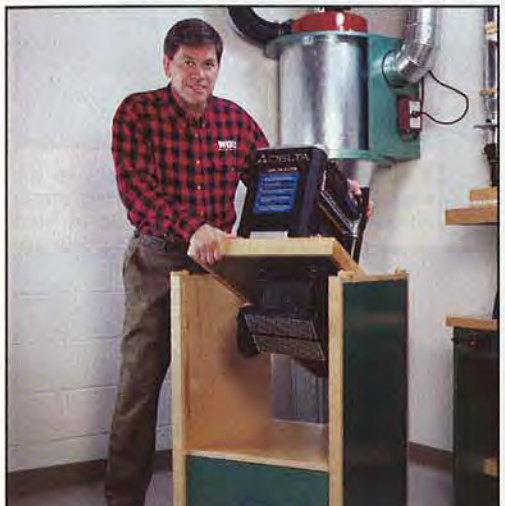
vides storage, too, with a recessed tray to keep pushsticks, tape measure, safety goggles, and whatever else you need within easy reach yet out of the way of the blade and your work.

We utilized joist space to accommodate the lighting fixtures and to run the dust-collection piping, too. If your shop headroom is limited to 8' or less, you'll want to consider open joists, also.

Continued

Efficient dust collection doesn't have

The 1½-hp. cyclone dust collector operates quietly (62–82 dBA). Fitted with a cartridge-type air filter, it's 99.9 percent efficient at removing even the smallest dust particles from the air. Find out how to build one for your shop on *page 54.*



To use the thickness planer, you release the catches and rotate the top. After machining stock, you rotate the planer back into its original position.

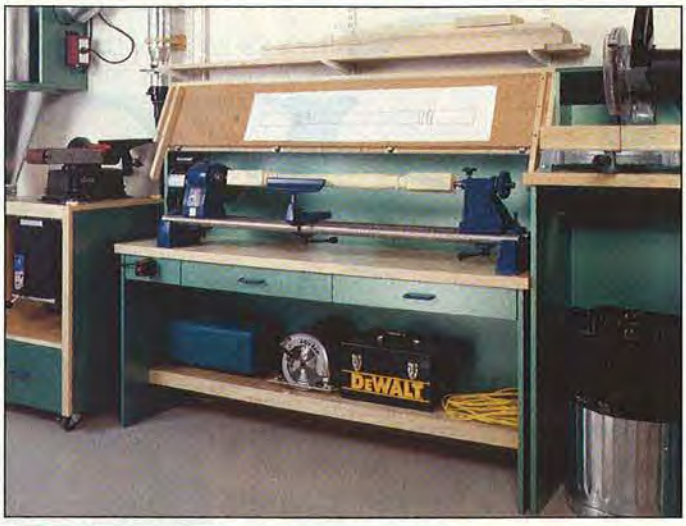
For a stationary machine that's not used all that mu
lathe takes up a lot of wall space. We found a solution
not only helps housekeeping, but makes cutting to leng
easier job in tight space.

A cyclone heads up shop dust collection

Dust is a problem in every woodworking shop. But in a basement shop, collection becomes top priority because wood dust can invade the house. So our criteria for power tools was that each had to have a dust-collection port and run as quietly as possible.

Traditional central dust-collection systems don't operate quietly, though. And the larger the horsepower, the louder the noise level. When your basement shop might be located under your family room or living room, noise becomes a real concern.

to be a noisy operation.



We put lathe space to work by fitting the machine with a flip-down wooden lid. The maple cover then performs as a cut-off table for the mitersaw at the right.

Photographs: Wm. Hopkins

Long used in industrial and commercial applications, cyclone dust collectors operate more quietly than others. In fact, our 1½-hp. one operates below the 90 dBA danger level. And it clears the air at a rate of 760 cubic feet per minute (CFM).

Wherever possible, machines and workstations in the shop have dust-collection ports attached to the cyclone system. The motor of the contractor's style tablesaw, for instance, was boxed in to enclose a garbage bag that catches falling sawdust, and the lid acts as an outfeed extension. Then, there's a dust port attached to the saw guard that corrals sawdust off the top of the blade. And the saw's right-hand extension table doubles as a sanding table.

Mitersaws pose a problem in connecting to a central dust-collection system. So we built a cabinet for ours to stand on that features a dust-collecting hood. Sawdust falls through an opening directly into a garbage can that rests below.

Lathes also are a dust-collection headache. Our cabinet catches the dust and shavings behind the machine, where they're quickly gathered with a flexible hose connected to the central system. (We found that quick-disconnect fittings—the type used for recreational vehicle drain hoses—work well for the couplings of extension hoses.)

Finally, there's a floorsweep connected to the dust-collection system. With a broom, you sweep floor debris right into the floor-level take-up.

Dust-Defying Cyclone

Now's the time to equip your shop with a powerful collector that does it all!

In designing and outfitting our IDEA SHOP® 3 basement shop with a cyclone dust collector, I had several objectives in mind. I wanted a space-efficient unit with minimal noise, dust-free emission, low-cost construction, and convenience of use. Hopefully, you'll agree that I met all these criteria with this wall-hung dust collector, which cost under $375 ($439 if you add the remote switch).

Jan Hale Svec
Assistant Design Editor

Note: *See the Buying Guide at the end of the Bill of Materials for our source of the blower, switch, and air filter we used for building this project. For more on dust collectors—how they work and why they're so effective—see our tool-comparison article in the April 1997 issue, #96, of WOOD® magazine.*

OK, let's start with the wooden framework

1 Cut the blower shelf (A), back (B), sides (C), cylinder head (D), cylinder base (E), and cone ring (F) from ¾" medium density fiberboard or birch plywood to the sizes listed in the Bill of Materials.

Smart Solutions For Your Basement Shop
IDEA SHOP® 3
From The Editors Of *WOOD*® Magazine

In a corner or against a wall, this highly efficient cyclone dust collector requires minimal space with easy access to the waste can.

2 Using the Frame drawing and the Parts View drawing on the following pages, lay out the shapes for the blower shelf (A), cylinder head (D), cylinder base (E), and cone ring (F). (We found trammel points great for marking the large arcs. See the August 1997 issue of *WOOD* for our homemade trammel.) Cut the pieces to shape, and sand the exposed edges smooth.

3 Drill blade start holes on the waste side of the cutlines for the holes in the blower shelf (A), side (C), cylinder head (D), cylinder base (E), and cone ring (F). Cut the holes with a jigsaw.

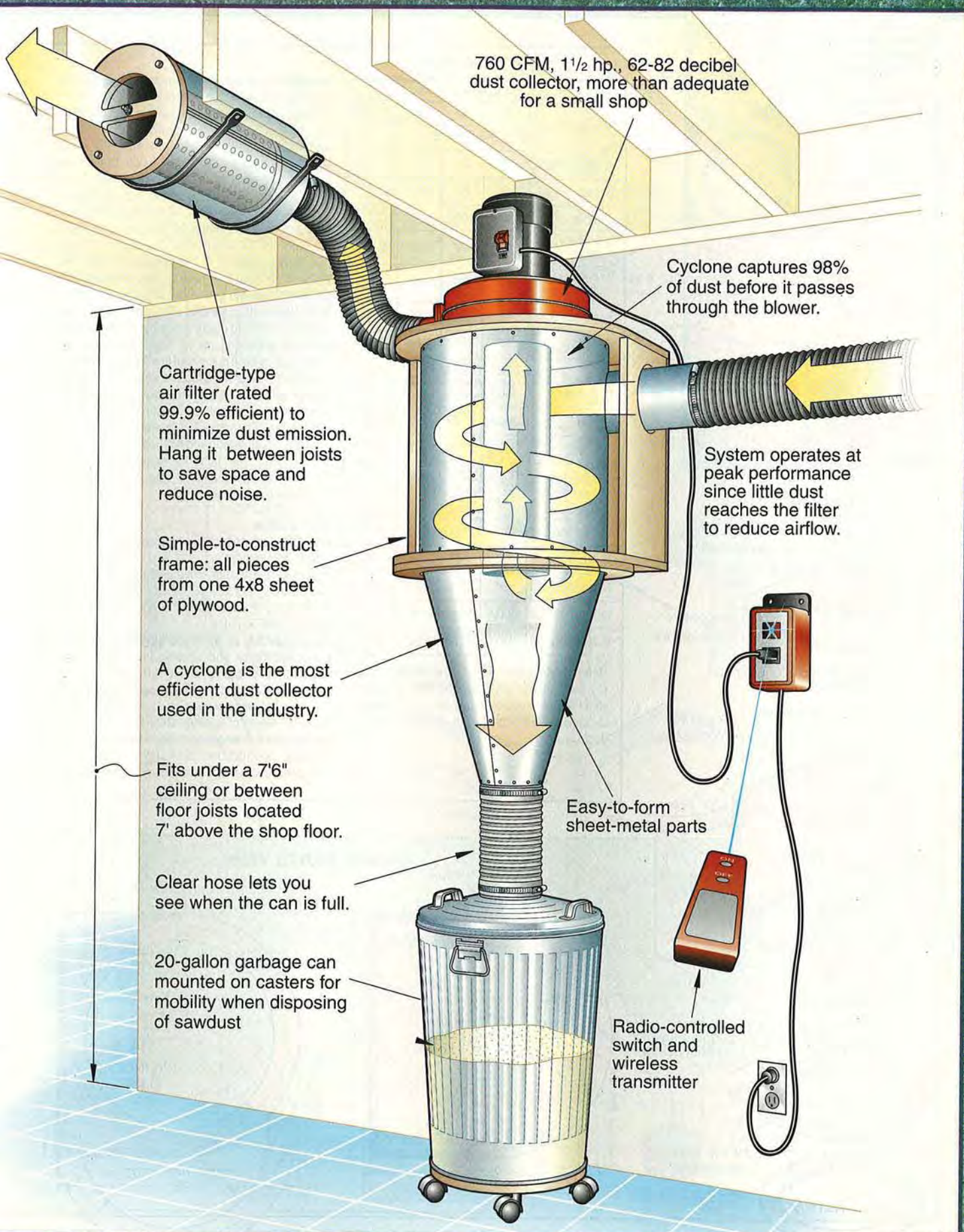
4 Center the cylinder head (D) on the bottom side of the shelf (A), aligning the hole of one over the other. Clamp the two together. Drill four 5/16" holes for securing the cylinder head to the shelf later. Now, do the same with the base (E) and cone ring (F).

5 Glue and screw the blower shelf (A) to the back (B) and sides (C).

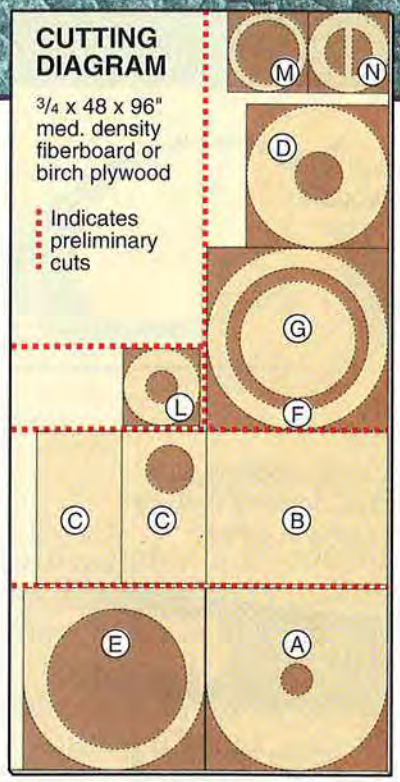
6 To form the dolly (G) shown on the Exploded View drawing, measure the inside diameter on the *bottom* side of your garbage can (our 20-gallon can measures 14¾"). Cut the dolly disc to shape.

7 Prime and paint the parts A–G, except D. (We used Hammerite, a paint with a textured finish. See more on this in the Products That Perform section of this magazine. Then, read the article on *page 14*, to learn what we discovered when using this paint on the IDEA SHOP 3 cabinets.)

Continued


760 CFM, 1½ hp., 62-82 decibel dust collector, more than adequate for a small shop
Cyclone captures 98% of dust before it passes through the blower.
Cartridge-type air filter (rated 99.9% efficient) to minimize dust emission. Hang it between joists to save space and reduce noise.
System operates at peak performance since little dust reaches the filter to reduce airflow.
Simple-to-construct frame: all pieces from one 4x8 sheet of plywood.
A cyclone is the most efficient dust collector used in the industry.
Fits under a 7'6" ceiling or between floor joists located 7' above the shop floor.
Easy-to-form sheet-metal parts
Clear hose lets you see when the can is full.
20-gallon garbage can mounted on casters for mobility when disposing of sawdust
Radio-controlled switch and wireless transmitter

Cyclone



Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
CYCLONE FRAME					
A blower shelf	3/4"	23"	23"	C	1
B back	3/4"	23"	19 1/4"	C	1
C sides	3/4"	10 3/4"	19 1/4"	C	2
D cylinder head	3/4"	18"	18"	C	1
E cylinder base	3/4"	23"	23"	C	1
F cone ring	3/4"	23"	23"	C	1
G dolly	3/4"	14 3/4"	14 3/4"	C	1
SHEET-METAL PARTS					
H cylinder	30GA	20"	57 1/2"	SM	1
I inlet	30GA	6" dia.	15 1/2"	D	1
J outlet	30GA	6" dia.	20"	D	1
K cone	30GA	19 1/2"	20 3/4"	SM	3
FILTER					
L inlet ring	3/4"	9 11/16"	9 11/16"	C	1
M outlet ring	3/4"	10"	10"	C	1
N filter holder	3/4"	10 1/4"	10 1/4"	C	1
O filter inlet	30GA	4" dia.	4"	D	1
P filter housing	30GA	10" dia.	24"	D	1

Materials Key: C–choice of either medium density fiberboard or birch plywood, SM–30-gauge sheet metal (commonly sold as roof flashing), D–30-gauge galvanized steel, snap-lock, round duct.

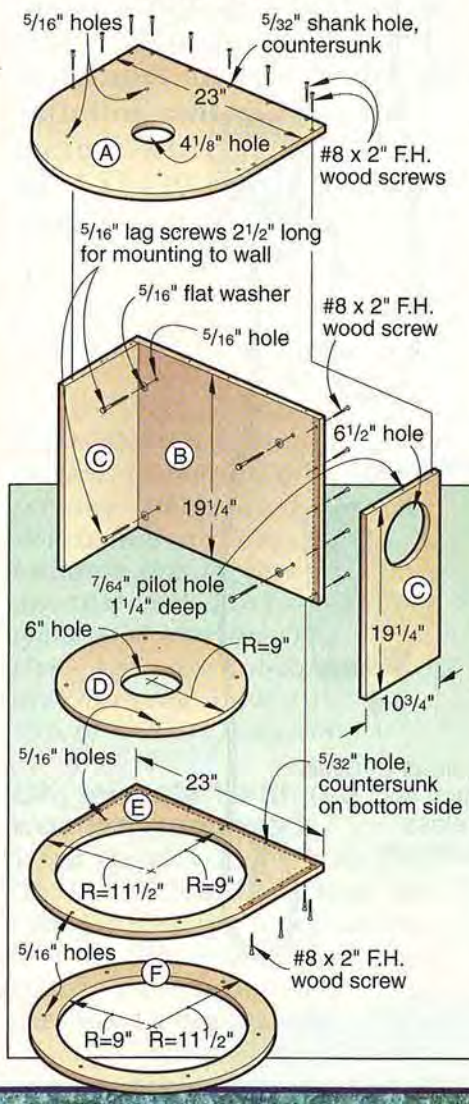
Supplies: From the Frame drawing: #8×2" flathead wood screws; 4–5/16" lag screws 2 1/2" long with 4–5/16" flat washers. From the Cyclone Exploded View drawing: 14–1/4×1 1/2" hexhead bolts with 1/4" flat washers and 1/4-20 T-nuts; #6×3/4" panhead sheet-metal screws; 6" round duct 20" long; 1"-wide double-faced tape; silicone sealant; 1/8" steel pop rivets with 1/16" to 1/8" grip range; 20"-wide by 10'-long roll of 30-gauge roof flashing or sheet metal will be enough for H and K; 6" snap-lock round duct 24" long (initially) for part (I). From the Exploded View drawing: 2–6" round duct starter collars; 2–6" hose clamps; 6" clear flexible hose 12" long, 2–4" hose clamps, 4" flexible hose 24" long, 20-gallon galvanized garbage can with lid; 2–6 1/2" steel utility handles (National 100-115) with 4–#10×1/2" flathead machine screws with flat washers and nuts; 4–casters with 3/8" washers and nuts, silicone caulk or butyl gutter seal in a squeeze tube; 3/8"-thick by 3/4"-wide self-adhesive, closed-cell, sponge rubber weather strip, 2–18"-long rubber tie-down straps, 4–#10×2" panhead sheet-metal screws and flat washers. From the Filter drawing: 4" round duct, 4" long; 3/8" all-thread rod 17" long with 2–3/8" flat washers and 2–3/8" nuts; 10" round snap-lock duct 24" long; air filter (cartridge type for diesel trucks, NAPA 6616 or Hastings AF699).

Buying Guide

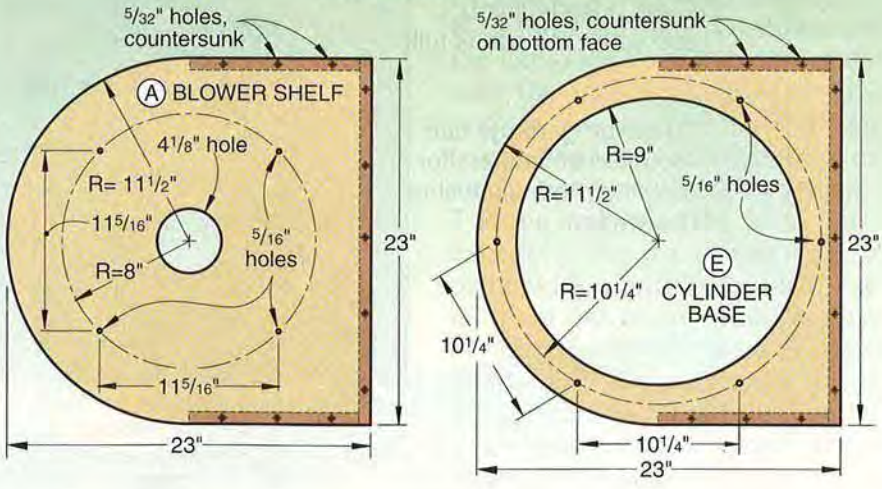
Portable dust collector. 1 1/2 horsepower, 760 cfm blower with four casters, nuts, and washers (use the casters on the bottom of the garbage can). Catalog no. DC3-CS, $213.95 ppd. Penn State Industries, 2850 Comly Road, Philadelphia, PA 19154. Or, call 800/377-7297 to order.

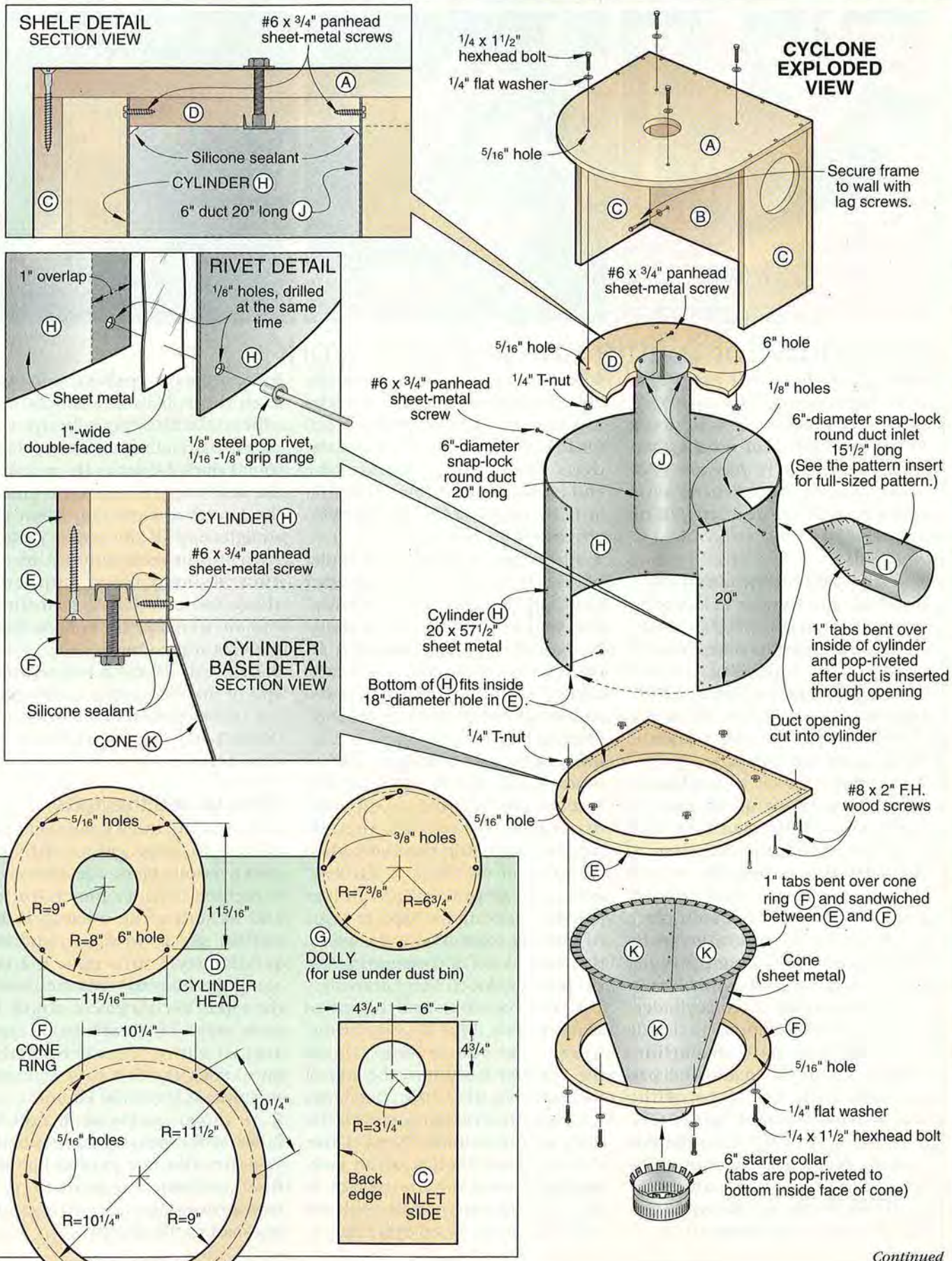
Remote switch, air filter, and flexible hose. Radio-controlled switch and wireless transmitter, 110V, good for collectors up to 1 1/2 H.P., relay/receiver, #LR110, $63.95 ppd. Add $49 for an 8"-diameter by 16 1/4"-long air filter, product no. CYFILT. Add $19.95 for a 12" length of 6"-diam. clear flexible hose and clamps and a 5' length of 4"-diam. flexible hose and clamps, product no. CYKITW1. Penn State Industries, address and phone number listed above.

FRAME



FRAME PARTS VIEW




SHELF DETAIL
SECTION VIEW
#6 x 3/4" panhead sheet-metal screws
A
D
Silicone sealant
CYLINDER H
6" duct 20" long J
C
CYCLONE EXPLODED VIEW
1/4 x 1 1/2" hexhead bolt
1/4" flat washer
5/16" hole
A
Secure frame to wall with lag screws.
C
B
C
#6 x 3/4" panhead sheet-metal screw
RIVET DETAIL
1" overlap
1/8" holes, drilled at the same time
H
Sheet metal
1"-wide double-faced tape
1/8" steel pop rivet, 1/16 -1/8" grip range
5/16" hole
6" hole
D
#6 x 3/4" panhead sheet-metal screw
1/4" T-nut
1/8" holes
6"-diameter snap-lock round duct inlet 15 1/2" long (See the pattern insert for full-sized pattern.)
6"-diameter snap-lock round duct 20" long
J
H
20"
I
CYLINDER H
C
#6 x 3/4" panhead sheet-metal screw
E
F
CYLINDER BASE DETAIL
SECTION VIEW
Silicone sealant
CONE K
Cylinder H 20 x 57 1/2" sheet metal
1" tabs bent over inside of cylinder and pop-riveted after duct is inserted through opening
Bottom of H fits inside 18"-diameter hole in E
Duct opening cut into cylinder
1/4" T-nut
5/16" holes
R=9"
R=8"
6" hole
11 5/16"
11 5/16"
D
CYLINDER HEAD
3/8" holes
R=7 3/8"
R=6 3/4"
5/16" hole
G
DOLLY
(for use under dust bin)
#8 x 2" F.H. wood screws
E
1" tabs bent over cone ring F and sandwiched between E and F
K
K
Cone (sheet metal)
K
F
F
CONE RING
10 1/4"
10 1/4"
5/16" holes
R=11 1/2"
R=10 1/4"
R=9"
4 3/4"
6"
4 3/4"
R=3 1/4"
Back edge
C
INLET SIDE
5/16" hole
1/4" flat washer
1/4 x 1 1/2" hexhead bolt
6" starter collar (tabs are pop-riveted to bottom inside face of cone)

Continued

And now for a little sheet-metal work

Note: *Don't have any experience with sheet metal? Not to worry. We've kept the sheet-metal work to a minimum and used off-the-shelf pieces where possible. For more insight on working with sheet metal, see the article on page 8.*

1 Scribe the cutlines, and cut a piece of sheet metal to 20×57½" for the cylinder blank (H). (Using an aviation-style tin snips, we cut ours from 20"-wide, 30-gauge roof flashing, purchased from a local hardware store. A 10' section is enough for the cylinder H and the three cone segments K.)

2 Copy or transfer the inlet-hole pattern from the pattern insert in the center of the magazine, and adhere it with spray adhesive to the cylinder blank (H) where shown on pattern insert. If your sheet metal came in a roll, place the curl side *down* on the workbench. The side facing up (what was the outside face of the roll) will be the outside of the cylinder.

3 Drill a ½" hole about ½" inside the inlet-hole pattern cutline. Staying about ½" inside the pattern line, cut out most of the waste with a metal snips. (We found it difficult to cut to the line without first removing most of the waste.) Cut along the pattern line to finish forming the opening. Remove the paper pattern.

4 Using a centerpunch, mark the hole centerpoints along both sides and one end of cylinder blank (H) for the sheet-metal screws and the rivets. Mark the centerpoint at the end of the teardrop-shaped cutout in H. Drill the holes. See the pattern insert for reference.

5 Test-fit the sheet-metal cylinder blank (H) around the cylinder head (D) to verify the 1" overlap. Use an awl to scribe the overlap line on the cylinder. Apply a 1"-wide strip of double-faced tape aligned with the overlap line, and adhere the other end of the blank, forming a cylinder.

6 Clamp a piece of 2×4 on edge to your workbench so that 22" extends out from the bench. Slide the cylinder (H) over the protruding 2×4, centering the overlapped taped seam on the 2×4. Drill ⅛" holes and pop-rivet the cylinder together, leaving the tape in place to seal the seam where shown on the Rivet detail accompanying the Cyclone Exploded View drawing.

7 Use a hammer and block of wood to seat the T-nuts in the 5/16" holes in the cylinder head (D). Fit the cylinder head into the top of the cylinder (H). Drill pilot holes through the cylinder and into the edge of the cylinder head. Drive the screws to connect the two, making certain the top surface of the cylinder head is flush with the top edge of the metal cylinder.

8 Copy the pattern for the inlet (I) from the Full-Sized Patterns, and adhere it with spray adhesive to a piece of 6"-diameter snap-lock round duct 24" long. Do not snap the duct together until the end of the inlet has been cut. Align the straight end of the paper pattern with the uncrimped end of the duct. Using a metal snips, cut along the curved pattern lines, and then make the cuts to form the tabs at the same end.

9 Drill the ⅛" rivet holes in the end of the inlet and in every other tab where marked. Now, remove the paper pattern, and snap the seam together.

Time to add the cone

1 Lay out the three cone segments (K) on 30-gauge galvanized steel sheet metal. Mark the pop-rivet centerpoints with a punch. Use an awl to scribe the overlap lines. Cut the pieces to shape with the aviation-style tin snips, and cut along the lines to form the tabs at the top of each segment. Apply 1"-wide strips of double-faced tape, aligned with the scribed overlap lines. Stick the first two segments together as shown in Photo A.

2 As shown in Photo B, drill ⅛" holes at the marked centerpoints. Pop-rivet this first joint to join the first two cone segments. Repeat this process to fasten the third segment to the first two.

3 Clamp the 2×4 flat on the workbench as shown in Photo C. Clamp the taped edge of the three joined cone segments to the 2×4 using another board aligned with the overlap line to hold it flat. Using the clamping board as a guide, adhere the free end of the joined cone segments to the tape, forming a cone (K) as shown in Photo C. Drill ⅛" holes at the marked centerpoints, unclamp the cone, and pop-rivet the overlapping edges together.

Add the starter collar and cone ring to the cone

1 Reclamp the 2×4 on *edge* to the workbench. Mark the location of every other tab of the 6" starter collar around the outside of the bottom opening of the cone. Insert the tabs of the starter collar into the cone, and slide the cone and starter collar over the 2×4. Drill through the cone and the tabs as shown in Photo D. Pop-rivet the collar into place.

2 Support the edge of your cone ring (F) on the edge of your workbench as shown in Photo E. Drop the completed cone (K) into the ring and bend down the tabs as shown in the photo.

3 Place the cone on the workbench with the tabs down. Clamp the cone ring down tightly. Clean the metal with denatured alcohol, and apply sealant to the joint between the cone and the starter collar and in the gap between the cone and the cone ring where shown on the Cylinder Base detail.

It's time to connect the inlet and outlet

1 Position the inlet (I) in the teardrop-shaped cutout in the cylinder (H) so that the *ends of the tab cuts* are flush with the surface of the cylinder. Align the rivet hole at the end of the teardrop-shaped cutout in the cylinder with the rivet hole at the pointed end of the inlet. Pop-rivet them together.

2 Bend the tabs on the inlet (I) over so they are flat on the *inside* of the cylinder (H). Now, drilling from the inside and riveting from the outside, drill through every other tab and through the cylinder. Pop-rivet the inlet to the cylinder, checking to make sure that the inlet remains properly aligned in the hole in cylinder (H).

3 Cut the outlet (J) from a piece of 6" round duct, cutting off the crimped end. Do not snap the duct together until the outlet has been cut. Snap the seam together, and insert the outlet into the hole in the center of the cylinder head (D). Make certain the top edge of the outlet is flush with the top surface of the cylinder head. Drill the pilot holes, and screw the outlet to the cylinder head. See the Shelf detail for reference.

Next, construct the main body of the cyclone

1 Position the shelf/back/side assembly (A,B,C) on its back on your workbench, and attach the cylinder head/cylinder/inlet/outlet assembly (D,H,I,J) to it with four ¼×1½" hexhead bolts and flat washers where shown on the Cyclone Exploded View drawing and accompanying Shelf detail.

2 Clamp the cylinder base (E) to the open bottom end of the cylinder (H), and against the bottom ends of the back (B) and sides (C). Now, working from the inside of the metal cylinder, drill the holes and screw the cylinder to the base (E). See the Cylinder Base detail for reference.

3 Remove the clamps. Then, remove the bolts connecting the cylinder head (D) to the blower shelf (A). Set the D,E,H,I,J assembly on its base on the workbench, and seat the T-nuts in the 5/16" holes in the cylinder base (E).

Note: *Before applying sealant in the next step, clean the sheet-metal surfaces where the sealant is to be applied with denatured alcohol or lacquer thinner. For ease of application, particularly on the inside of the cylinder, use sealant in a squeeze tube rather than a caulking gun cartridge.*

4 To further seal the project components, apply a fillet of sealant at the juncture of the cylinder (H) and the cylinder base (E) where shown on the Cylinder Base detail accompanying the Cyclone Exploded View drawing. Apply a fillet of sealant on the outside of the juncture of the cylinder and inlet (I). Turn the assembly over, and apply fillets of sealant at the juncture of the cylinder and cylinder head (D) and the outlet (J) and cylinder head where shown on the Shelf detail.

Continued

The dust bin comes next

1 Cut a 6" hole in the center of the lid of a 20-gallon galvanized steel garbage can. Insert the tabs of a 6" starter collar into the hole, and bend the tabs over on the *inside* of the lid.

2 Working from the bottom side of the lid, drill ⅛" holes through every other tab and through the lid. Working from the top side of the lid, pop-rivet the lid to the starter collar.

3 Drill holes through the lid and attach a pair of metal handles to the lid where shown on the Exploded View drawing.

4 Clean the metal as before, and apply sealant to the joint between the starter collar and lid. Then, clean the metal around the inside rim of the lid, and adhere a ring of ⅜×¾" self-adhesive, closed-cell sponge rubber weather strip.

5 Fit the dolly (G) inside the lip on the bottom side of the garbage can. Drill four ⅜" holes through the dolly and through the bottom of the garbage can (the four casters and mating hardware come with the blower sourced in the Buying Guide). Secure the casters to the dolly and garbage can. Put the lid on the can and roll it aside.

An air filter keeps the fine dust in

1 Mark the outlines of the inlet ring (L), outlet ring (M), and filter holder (N) on ¾" medium density fiberboard or birch plywood to the shapes shown on the Filter Parts View drawing.

2 Drill ⅜" holes in the interior waste portion of L, M, and N, and jigsaw to the lines.

3 Mark the centerpoints for the four 5⁄16" holes on the outlet ring (M). Center the outlet ring on the filter holder (N), and clamp them together. Drill the 5⁄16" holes through both pieces. Unclamp the pieces, and drill a ⅜" hole through the center of N.

4 Finish-sand the pieces, and paint parts L and N.

5 Cut a piece of 4" snap-lock duct for the filter inlet (O) to 4" long, snap it together, and insert it into the hole in the inlet ring (L). Drill the pilot holes and screw the pieces together.

6 Seat the T-nuts in the 5⁄16" holes in the outlet ring (M). Snap a 24"-long section of 10" snap-lock duct together to form part (P). Fit the inlet ring (L) into the crimped end where shown on the Filter drawing. Drill pilot holes, and screw the duct to the inlet ring.

7 Fit the outlet ring (M) into the uncrimped end of P. Drill the pilot holes, and drive the screws.

8 Clean the metal, and apply sealant around the inside of the filter housing (P) where the duct meets the inlet and outlet rings and where the inlet (O) meets the inlet ring.

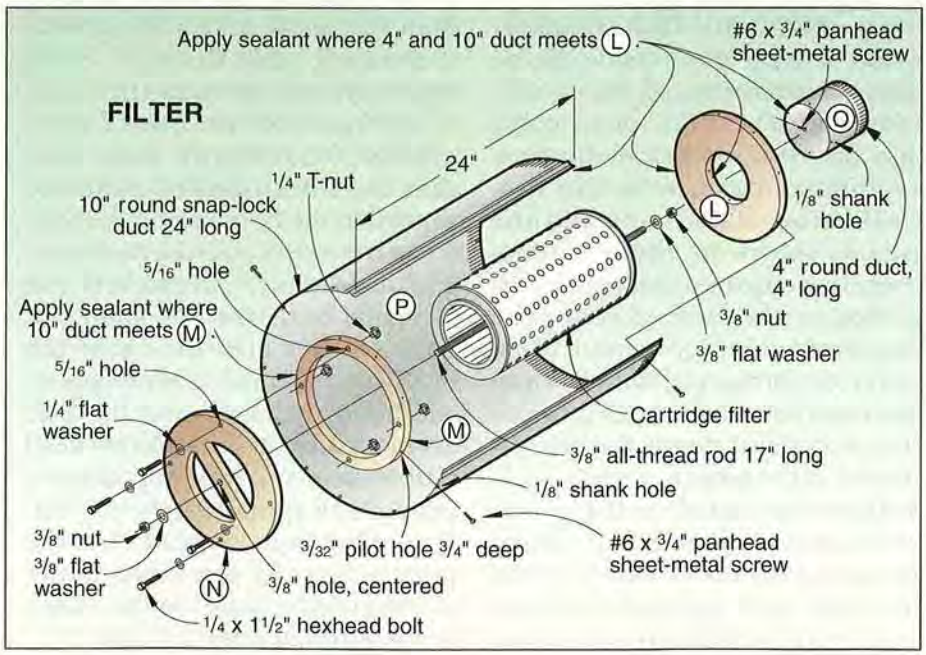
9 Fasten the cartridge filter to the filter holder (N) with a 17"-long piece of ⅜" all-thread rod, washers, and nuts, making certain the cartridge is centered on the filter holder. Slide the cartridge/filter holder assembly into the filter housing, and fasten it into place.

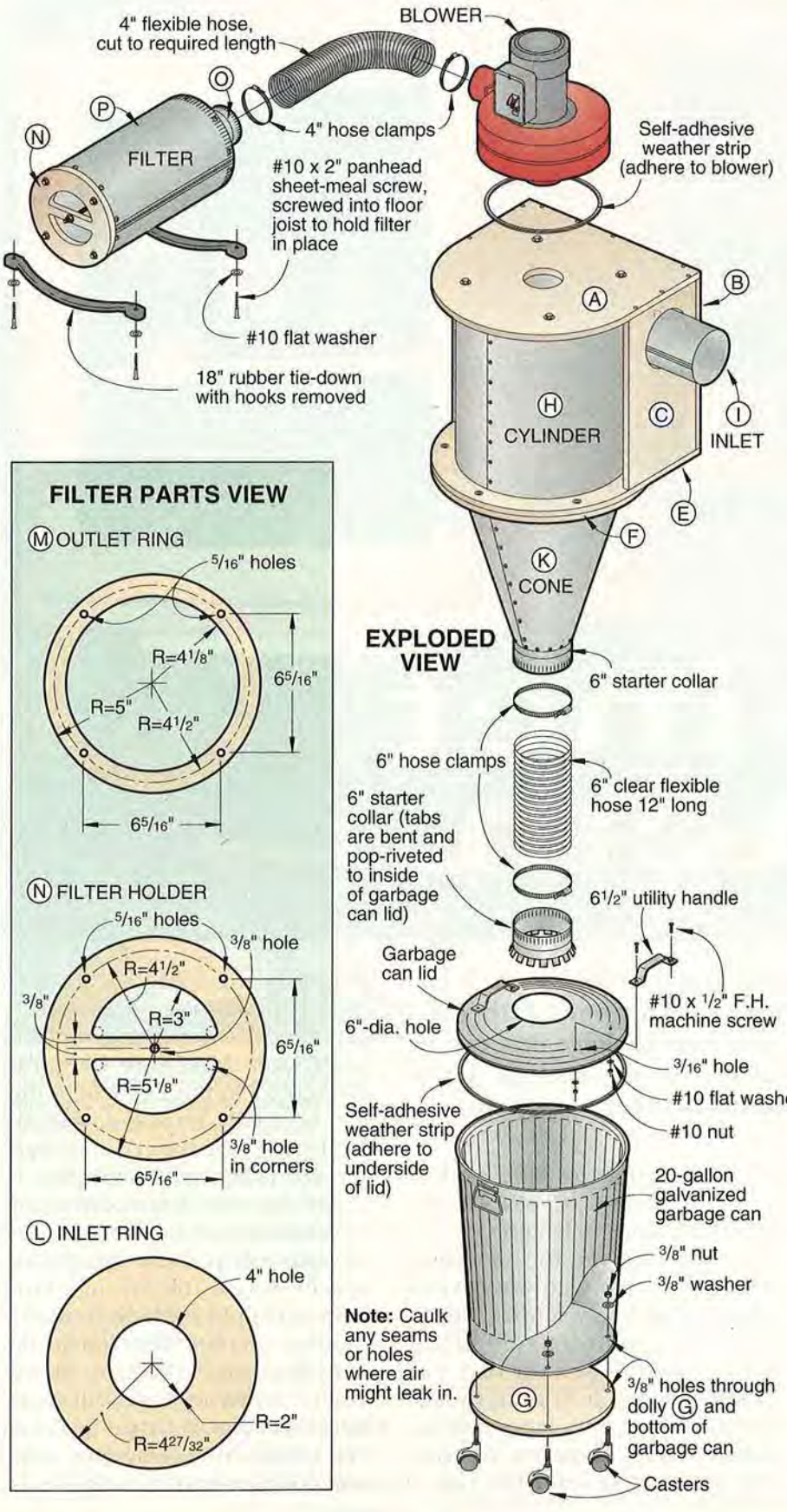
Final assembly

1 Drill holes through the back (B) for mounting the unit to the wall later. See the Frame drawing for reference. Position the holes so you hit at least one stud (and ideally two) in the wall. Fasten the bracket assembly (A,B,C) to the wall so that the top of the blower shelf (A) is level and 76" from the floor. The total height required for the dust collector is 90". If there is not sufficient clearance underneath the floor joists, position the assembly (A,B,C) so that the blower motor will be located between two floor joists. Allow for a minimum clearance of 1" over the top of the blower motor.

2 Fit the cylinder assembly (D,E,H,I,J) into the bracket assembly by rotating it enough to fit the inlet (I) through the hole in the side (C), and fasten it in place with the ¼" bolts. Then, secure the cylinder base (E) to the back (B) and the sides (C) with 2" wood screws.

3 Position the cone assembly (F,K) underneath the cylinder base (E), and fasten it in place with ¼" bolts, sandwiching the 1" tabs of the cone (K) between the





cylinder base and the cone ring (F) where shown on the Cyclone Exploded View drawing.

4 Attach a 12" length of 6" flexible hose to the starter collar at the bottom of the cone with a hose clamp. Position the dust bin under the cone, and attach the other end of the hose to the starter collar on the can lid with a hose clamp where shown on the Exploded View drawing.

5 Adhere a piece of ⅜×¾" weather strip to form a ring approximately 11" in diameter to the intake (bottom) side of the blower. Seal any unused bolt holes in the blower (the blower comes mounted to a frame). Set the blower in place on the blower shelf (A) with its intake flange inserted into the 4⅛"-diameter hole. Hang the filter assembly (L,M,N,O,P) between two conveniently located floor joists, using a pair of rubber tie-down straps where shown on the Exploded View drawing. Connect the blower to the filter with a length of 4" flexible hose and two hose clamps.

6 Hook up the dust-collection piping to the inlet (I). If you've used plastic piping for the central dust-collection system in your shop, connect the grounding wire to the blower housing. (See the June 1991 issue, #43, of *WOOD*® for our shop-made dust-collection system using PVC pipe.)

7 For convenience, we plugged the blower into a radio frequency controlled switch so we can operate it from any location in the shop with a wireless transmitter.

8 Periodically you'll need to remove the filter and blow it out. Also, by watching the clear hose above the garbage can, you'll be able to tell when the can is full.

Written by Marlen Kemmet
Project Design: Jan Hale Svec
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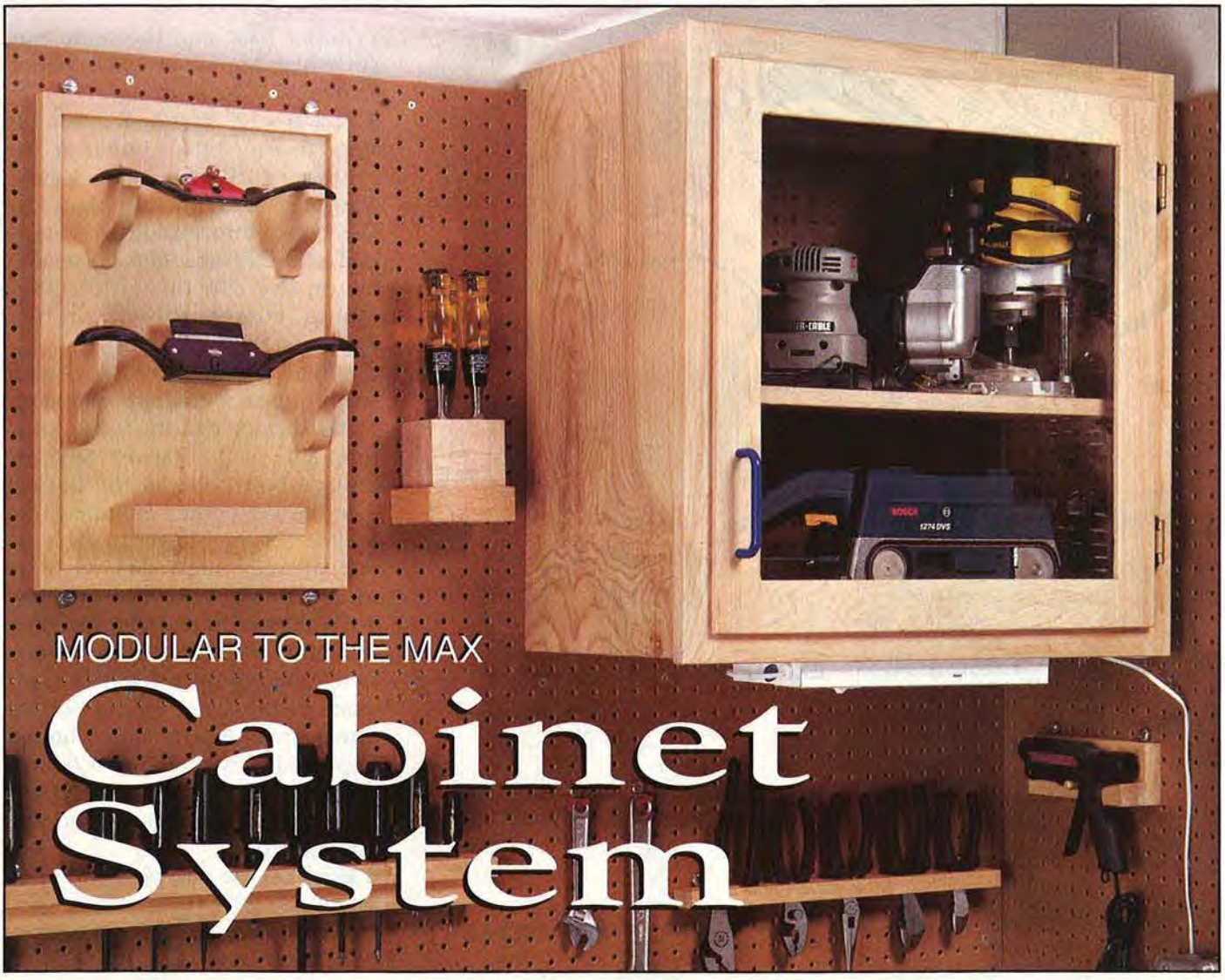
Illustrations: Kim Downing; Lorna Johnson
Photographs: John Hetherington; Bill Hopkins



MODULAR TO THE MAX

Cabinet System

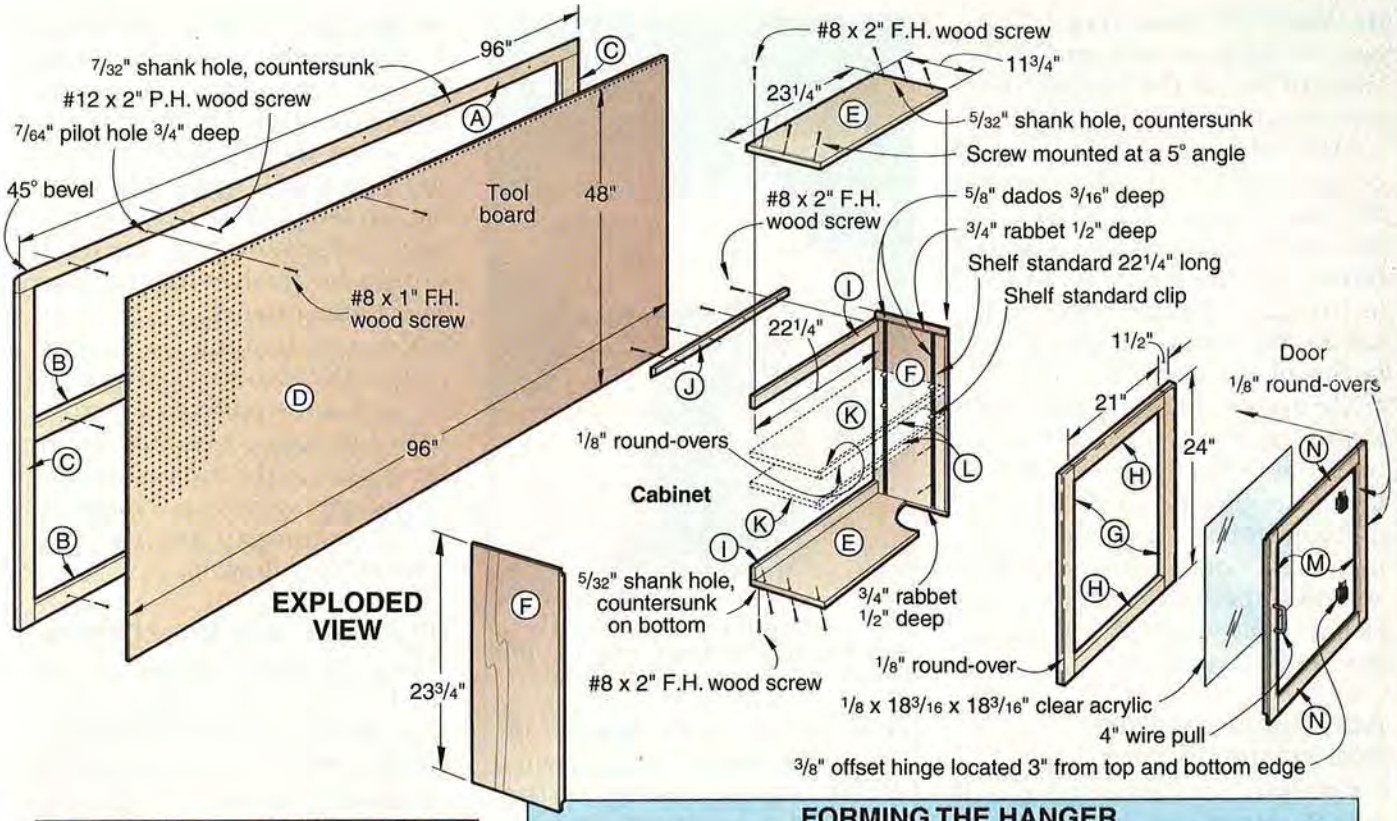
The smaller your shop, the smarter you have to be when laying it out to meet your needs. That's why for our 12×16' IDEA SHOP® 3, we decided to go with a cabinet package that can be anything you want it to be. Read the boxed material at the end of the article to customize the cabinets for your shop.

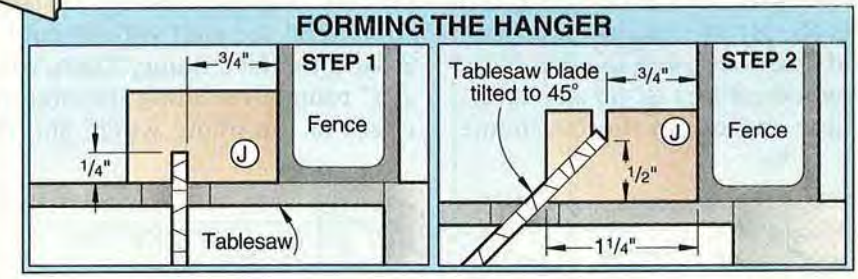
Let's begin with the perforated hardboard tool board

1 Select the straightest 1×3's available for the mounting strips (A, B, C). When purchasing these, make sure they're ¾" thick, we ran across some furring strips that measured only ⅝" thick. Use the straightest of the bunch for the top strip. Now, bevel-rip the top mounting strip at 45° where shown on the Hanger detail accompanying the Side Section View drawing. Crosscut the mounting strips to length.

2 To position the top mounting strip A (the one with the beveled edge), temporarily screw or nail a 2×4 to the bottom side of the floor joists, assuming that you have 7' ceilings in your basement. For basements with taller ceilings, simply snap a chalk line to establish where you want the top of the pegboard. Using the 2×4 as a spacer creates the necessary 1½" gap needed for hanging the cabinet(s) later. Make sure you locate the screws in the 2×4 where they can be easily removed after the perforate hardboard has been secured to the mounting strips.

3 Lay out and drill countersunk mounting holes through each mounting strip. Using the 2×4 as a spacer, screw the top mounting strip (A) in place where shown on the Side Section View and accompanying detail. The type of wall you're screwing into will determine the size and type of fasteners required. Screw the other mounting strips (B, C) in place.





The bevel-ripped hanger strip on the cabinet fits onto the mating angled piece on the tool board, allowing you to position the cabinet wherever you want.

4 Drill mounting holes, and screw the perforated hardboard front (D) to the mounting strips. Remove the 2×4 spacer from the floor joists.

Now, construct the wall cabinet

1 Cut the cabinet top and bottom (E) and sides (F) to size.

2 Using a dado blade in your tablesaw, cut 5/8" dadoes 3/16" deep for the shelf standards on the inside face of

Continued

Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
TOOL BOARD					
A top strip	3/4"	2 1/2"	96"	P	1
B middle & bottom strips	3/4"	2 1/2"	91"	P	2
C end strips	3/4"	2 1/2"	45 1/2"	P	2
D front	1/4"	48"	96"	PH	1
CABINET					
E top & bottom	3/4"	11 3/4"	23 1/4"	BP	2
F sides	3/4"	11 3/4"	23 3/4"	BP	2
FACE FRAME					
G stiles	3/4"	1 1/2"	24"	M	2
H rails	3/4"	1 1/2"	21"	M	2

Part	Finished Size T	W	L	Matl.	Qty.
SUPPORTS AND HANGER					
I supports	3/4"	1 1/2"	22 1/4"	M	2
J hanger strip	3/4"	1 1/4"	23 3/4"	M	1
SHELVES					
K* shelves	3/4"	11 3/8"	22 1/8"	BP	2
L* banding	1/4"	3/4"	22 1/8"	M	2
DOOR					
M stiles	3/4"	2"	21 1/2"	M	2
N rails	3/4"	2"	21 1/2"	M	2

*Cut parts marked with an * oversized. Trim to finished size according to the how-to instructions.

Materials Key: P–pine or fir, PH–perforated hardboard, BP–birch plywood, M–maple or birch

Supplies: #8×1" flathead wood screws, #8×2" flathead wood screws, #12×2" panhead wood screws, one pair of 3/8" offset self-closing hinges (we used Amerock hinges, #BP 7565-BB), 4" wire pull, shelf standards and clips, 1/8×3/8" diameter cushions, acrylic, clear finish.

the sides (F). Then, cut ¾" rabbets ½" deep on each end of the sides to house the top and bottom (E) later.

3 Mark the screw-hole centerpoints on the top and bottom (E). We located ours 1½" from each end and centered the middle screw. The screws are located ½" in from the outside edge. Now, cut a scrap block like that shown in the photo *at right*, with a 5° angle across one end. Glue and clamp the plywood panels (E, F) together, checking for square. Using the block as a drill guide, drill angled holes through the corner joints. Countersink the holes, and drive the screws. Remove the clamps, and wipe off any excess glue with damp cloth.

After marking the centerpoints 1½" in from the outside edge, use a 5° drill guide to drill the angled holes.

Add the face frame and supports next

1 Cut the face frame stiles and rails (G, H) to size, so the assembled face frame will overhang the plywood cabinet ⅛" on all edges.

2 Glue and clamp the face-frame pieces directly to the front of the plywood cabinet. If you own a biscuit cutter, you can further strengthen the joint with biscuits.

3 Sand the face frame. Then, rout a ⅛" round-over along the outside edges of the frame where shown on the Exploded View drawing.

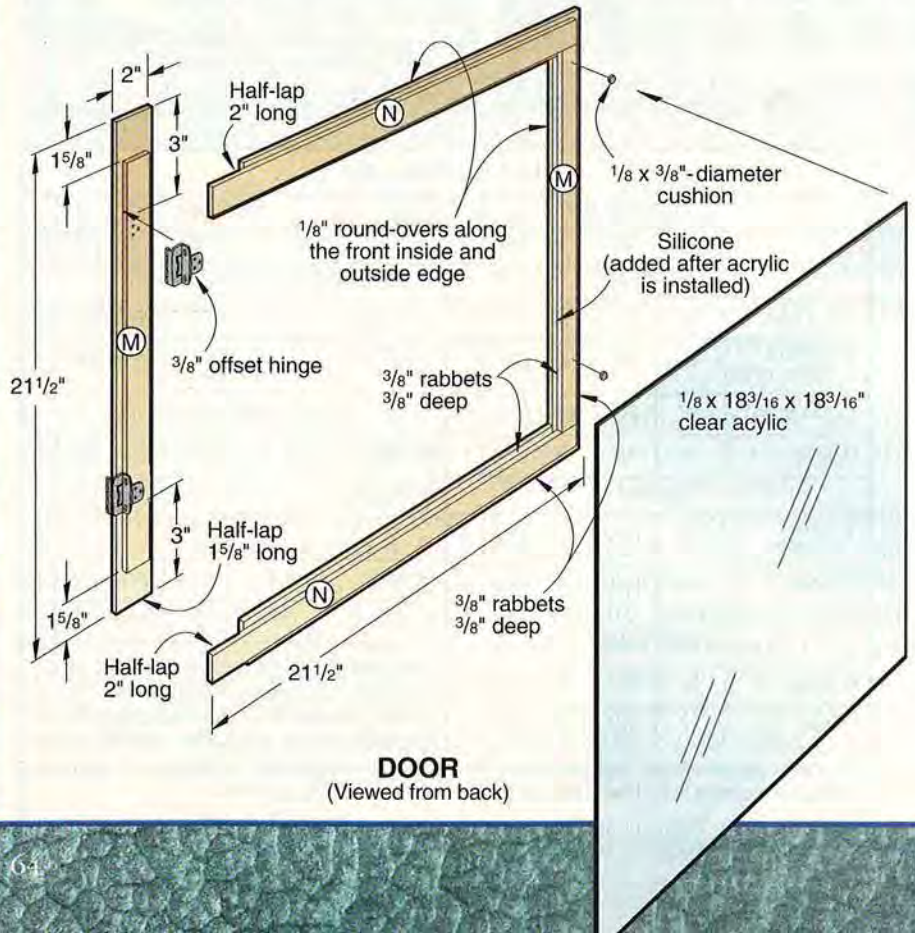
4 Measure the cabinet opening, and cut the supports (I) to size. Drill mounting holes, and glue and screw the supports to the top and bottom (E) where shown on the Exploded View drawing. The back edges of the supports should be flush with the back edge of the cabinet.

5 Cut the hanger (J) to size. Follow the two-step drawing on the previous page to form the angled bottom edge. Now, screw the hanger to the back of the cabinet where shown on the Hanger detail accompanying the Side Section View drawing.

Next, let's add the shelves

1 Cut the plywood shelves (K) and banding strips (L) to size plus 1" in length. Glue and clamp the banding strips to the front edge of the plywood shelves. Later, remove the clamps, and cut the shelves/banding to final length.

2 Rout ⅛" round-overs along the front, banded edge of each shelf.



DOOR
(Viewed from back)

Tips on Customizing Your Tool Board and Cabinets

Because all shop walls are not created equal, start by carefully determining where you want to position your tool boards and cabinets. And, in our opinion, you never can have too much perforated hardboard from which to hang tools and such. That's why we covered as much wall space in IDEA SHOP® 3 with it as we could.

Then, determine the size you'll need your tool boards. Since most basements have 7' ceilings, we designed this system to hang 1½" below the bottom edge of the floor joists. You'll need this 1½" clearance for hanging the cabinets on the tool

And now for a half-lapped door for the cabinet

1 Cut the door stiles (M) and rails (N) to size. Using the Door drawing for reference, cut half-lap joints on the ends of each.

2 Cut or rout a ⅜" rabbet ⅜" deep along the *inside* edge of each door member.

3 Glue and clamp the door frame together, checking for square and flatness. Later, remove the clamps, and sand the door frame.

4 Rout a ⅛" round-over along the *front* inside and outside edge of the door frame. Switch bits or use a dado blade in your tablesaw to cut a ⅜" rabbet ⅜" deep along the *back* outside edge of the frame.

5 Mark the hinge locations on the doors. Drill pilot holes and screw hinges in place.

6 Position the door centered in the opening, and mark the hinge-hole locations on the face frame. Position the door to open on the left or right, depending on what's most convenient. Drill the pilot holes, and screw the door/hinges to the face frame. Drill the mounting holes for the wire pull.

Finishing it all up

1 Remove the hardware from the cabinet. Finish-sand, and apply a clear finish to the cabinet, door, and shelves. Leave, the pegboard unfinished.

2 Cut the shelf standards to length, and then screw in place.

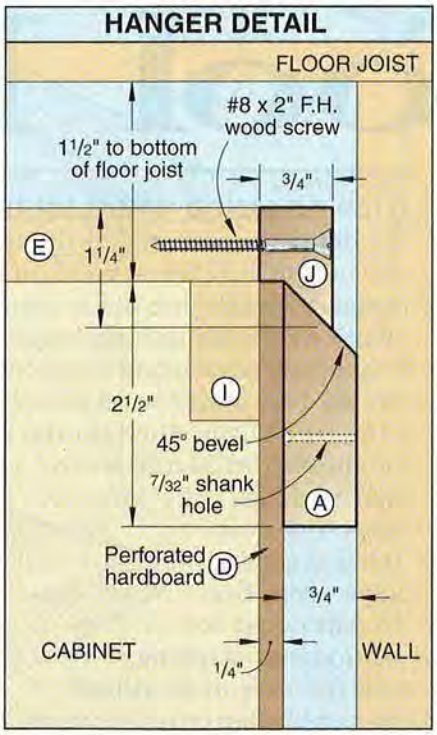
3 Measure the opening, and cut the acrylic for the door. Run a fine bead of clear silicone to secure the acrylic in place. Later, reattach the hinges, and secure the door to the cabinet.

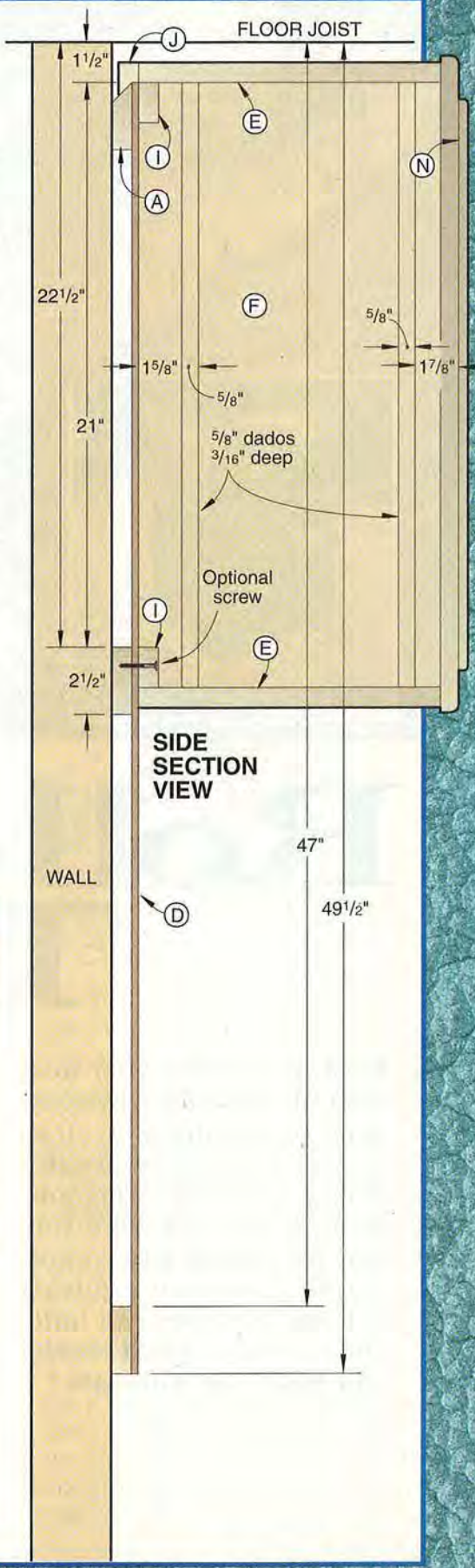
4 Hang the cabinet on the tool board. Leave the cabinet moveable, or drive a couple of screws through the bottom support (I), the perforated hardboard, and into the bottom mounting strip (B) where shown on the Side Section View drawing.

Written by Marlen Kemmet
Project Design: Chuck Hedlund
Illustrations: Roxanne LeMoine
Photographs: Bill Hopkins

boards. See the Side Section View for details. If your shop has more wall space, or if you already have a cabinet or workbench anchored to the wall where you want the tool board, create the tool board to fit the opening minus the 1½" gap needed at the top. If the wall is obstacle free, consider making the tool board 96" long, enabling you to use a full 4×8' sheet of perforated hardboard.

Customize your cabinets, too. Although we built ours all the same size, you may want to make your cabinets longer, shallower, or whatever. Be creative. And, if you really do something special with them, send me a photo; I'll show some of our readers' versions in a later issue.





Roll-Around Tool Base

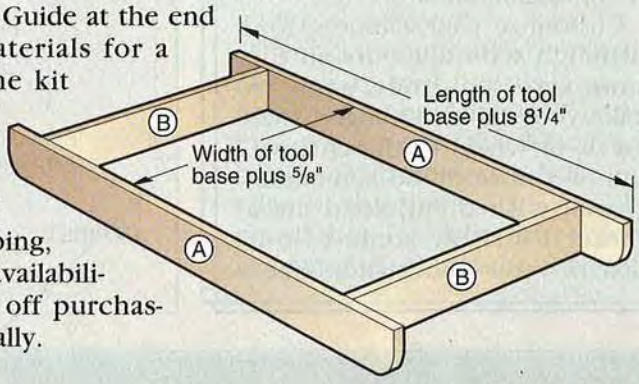
Tired of muscling your tools around the shop when you need to use them or clean around them? If so, try this money- and back-saving solution—a four-wheeled tool base for moving heavy woodworking machines quickly and easily. Once you build one (or more), you'll wonder how you got by without it.

Print this article

Tips on sizing your tool base

To determine the size of the mobile tool base, start by measuring the outside length and width of your tool base. Then, add 8¼" to the length to determine the length of the sides (A), and add ⅝" to the width to determine the length of the ends (B). Next, adjust the other pieces according to the instructions. The mobile base we built fits the base of our Sears 17⅜×27" bandsaw.

See the Buying Guide at the end of the Bill of Materials for a hardware kit. The kit contains everything except the angle iron. Due to the cost of cutting and shipping, and the ease of availability, you're better off purchasing angle iron locally.



Bill of Materials

Part	Finished Size			Matl.	Qty.
	T	W	L		
A sides	¾"	2¾"	TBD	M	2
B ends	¾"	2¾"	TBD	M	2
C end caps	¾"	4"	TBD	M	2
D blocks	1"	2"	3"	LM	2
E caster mount	¾"	4"	TBD	M	1
F cam lever	¾"	1⅝"	7¼"	M	1
G toekick	¾"	1½"	2"	M	1

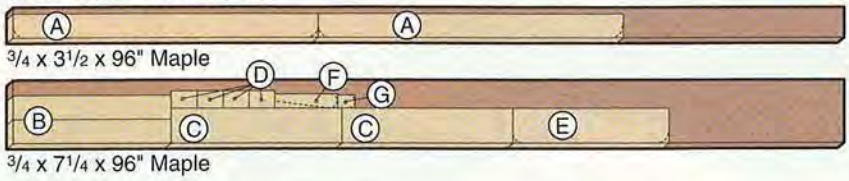
TBD: To be determined. Read the instructions for details on sizing a base to fit your machine base.

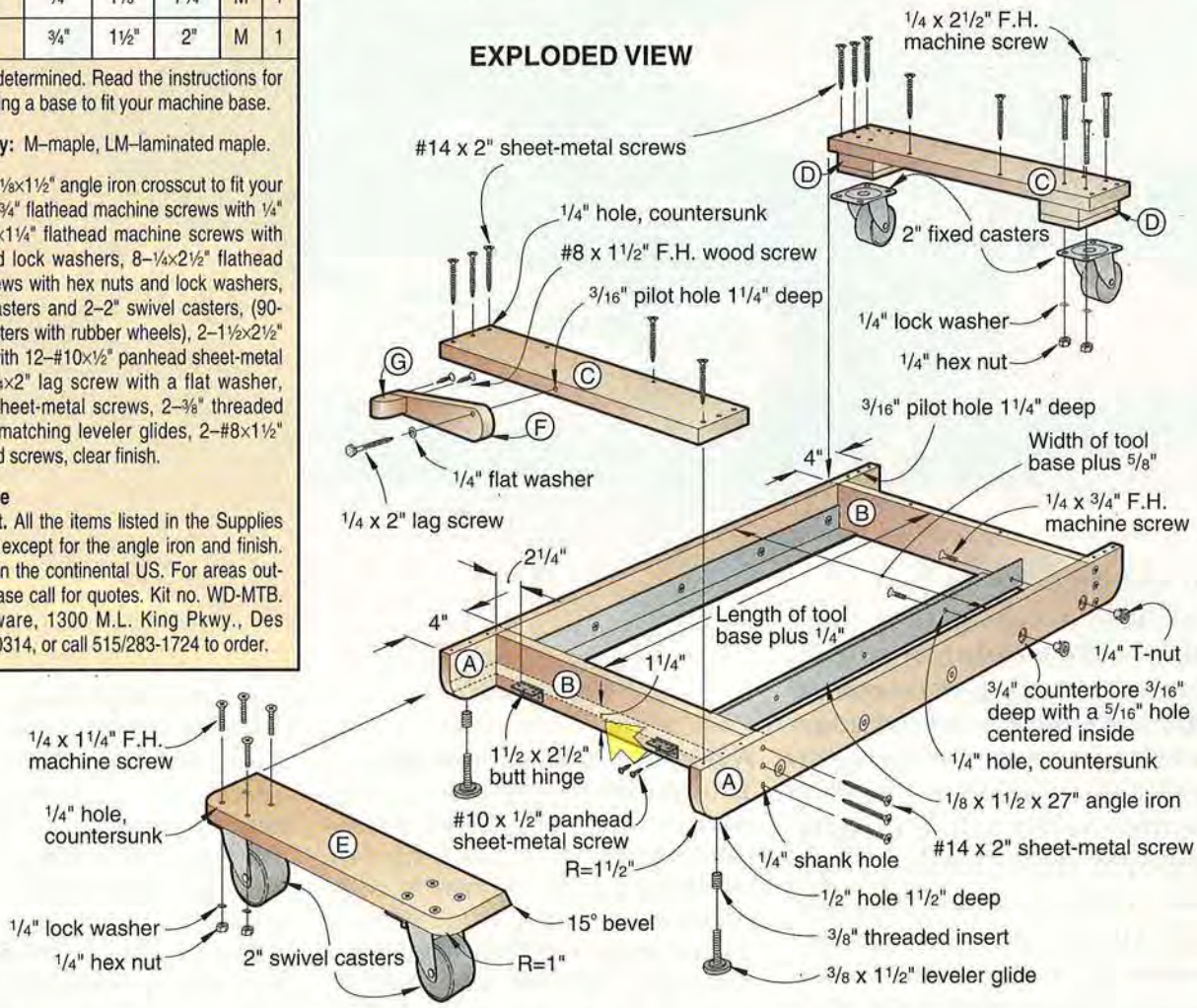
Materials Key: M–maple, LM–laminated maple.

Supplies: 2–⅛×1½" angle iron crosscut to fit your base, 10–¼×¾" flathead machine screws with ¼" T-nuts, 8–¼×1¼" flathead machine screws with hex nuts and lock washers, 8–¼×2½" flathead machine screws with hex nuts and lock washers, 2–2" fixed casters and 2–2" swivel casters, (90-lbs. plate casters with rubber wheels), 2–1½×2½" butt hinges with 12–#10×½" panhead sheet-metal screws, 1–¼×2" lag screw with a flat washer, 28–#14×2" sheet-metal screws, 2–⅜" threaded inserts with matching leveler glides, 2–#8×1½" flathead wood screws, clear finish.

Buying Guide

Hardware kit. All the items listed in the Supplies listing *above* except for the angle iron and finish. $39.99 ppd. in the continental US. For areas outside this, please call for quotes. Kit no. WD-MTB. Miller Hardware, 1300 M.L. King Pkwy., Des Moines, IA 50314, or call 515/283-1724 to order.





The basic wood frame comes first

1 From ¾" hardwood stock (we used maple), cut the base sides (A) and ends (B) to the lengths determined using the information in the box *at left* and to the width listed in the Bill of Materials.

2 Clamp the ends (B) between the sides (A) in the configuration shown on the Exploded View drawing and where dimensioned on the Parts View on the *WOOD PATTERNS*® insert in the center of the magazine. Check for square. *The opening should measure ¼" longer than your tool base and ⅝" wider.* Verify this, then drill countersunk holes through the the sides (A) and centered into the ends of the ends (B). Drive the screws, *but do not glue the joint yet.* For extra holding power, we used sheet-metal screws. For ease in driving the screws, add beeswax to the screw threads.

3 Measure from the outside face of one A to the outside face of the opposite A to determine the length of the end caps (C). Cut the end caps to length from stock ripped to 4" wide.

4 Laminate stock to form the 1"-thick caster blocks (D), then cut them to size. Temporarily clamp the end cap (C) for the fixed casters in place, and glue the caster blocks to the bottom side of the

SEE THE *WOOD PATTERNS*® INSERT FOR FULL-SIZED PATTERNS

Continued on page 96

PORTABLE BELT

No handheld power tool can hold a candle to a portable belt sander when it comes to leveling out a rough panel, shaping a curved edge profile, and downright heavy-duty sanding. But as we discovered, some models perform these tasks better than others. Read on and we'll share with you what we found out when we looked at 14 popular models of 3×21" and 3×24" belt sanders.

A few words about our test

To evaluate the 14 belt sanders listed here, we began with a careful inspection of each one to check the quality and type of components used, the fit of critical components, and the overall construction. Once we were familiar with the machines, we fired them up and sanded some polyester-coated particleboard. We chose this material since variations in a sander's base flatness show up quickly in the form of uneven sanding patterns. To get a better feel for their handling characteristics and sanding performance, we used the sanders on a laminated maple benchtop, trying different grit belts and different hand pressure. This provided us with information on a number of other aspects such as belt tracking and dust control. We also checked out their performance in edge sanding and their ability to sand flush to a 90° edge.

Why own a belt sander?

If you own a random-orbit sander, you may wonder if you really need a belt sander. Well, you probably own a shovel, but if you had a really big hole to dig, you'd hire someone with a backhoe.

When it comes to removing lots

FAST FACTS

- Only a couple of the belt sanders we tested sanded flat and level right out of the box.
- Graphite slip plates lie much flatter than their cork and steel counterparts.
- The balance and feel of a sander affects how well you can sand with it.
- A sanding frame—offered as an option for many sanders—proved invaluable when flattening glued-up panels. The frame's larger area bridges the valleys so you sand only the high spots. It also prevents the sander from accidentally tipping and gouging your work.

SANDERS

Should you have one of these powerhouses in your tool arsenal?

of stock in a hurry, you want a portable belt sander in your hands. With a 3"-wide abrasive belt, spinning at up to 1,500 feet per minute, it takes quite a bite, even in hardwoods. And, its portability lets you carry that raw power to the job.

But when it comes to leaving a smooth, flat surface, the models we tested varied greatly. We found a number of contributing factors—detailed here and in the following pages—that separate the good belt sanders from the rest of the pack.

What matters most when looking for a belt sander

• **A flat platen.** For a belt sander to sand flat, the base that supports the sanding belt where it contacts the workpiece—the platen and its slip plate—must be flat, as indicated in the drawing, *below*. Ridges or deflections in the platen or slip plate show up when you sand.

To test the flatness of platens, we held each sander in place while sanding a piece of polyester-coated particleboard. An even pattern, as shown in the photo *below left*, was the mark of a flat platen and earned an excellent rating in the chart on *page 72*. An uneven pattern, or one that showed sanding in several spots, as shown *below right*, indicated the platen had high spots, most typically on the front and back edges.

The sanders with cast-aluminum platens produced the most even sanding patterns— the Bosch 1274DVS and Metabo 0775 turned in excellent results right out of the box. However, by filing down minor high spots on the other platens, we brought even fair performers into acceptable limits.

Rigid, stable, and durable, cast-aluminum platens stand up to abuse. The same can't be said for stamped steel platens. Even the stamping process warps the bases, as does welding or machining done for mounting hardware, as shown in the photo *above*.

Cast-aluminum platens (left) proved flatter and more rugged than platens stamped from steel (right). Stamping and machining for mounting screws also warps the steel.

However, if you use a belt sander for fast and rough removal of stock only, and precise flatness doesn't matter to you, disregard the "flatness of base" column on *page 73*. All of the sanders have bases flat enough for rough work.

• **A graphite slip plate.** To prevent the belt from wearing down the platen, manufacturers install a slip plate between the platen and the belt. As the name implies, the slip plate allows the belt to slide smoothly over the platen.

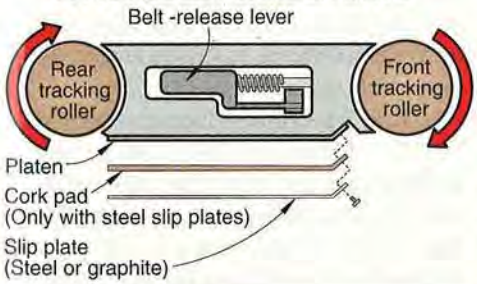
Ideally, the slip plate should conform to the platen to provide a flat sanding base. However, the material used and the way it attaches to the platen affect a slip plate's ability to conform.

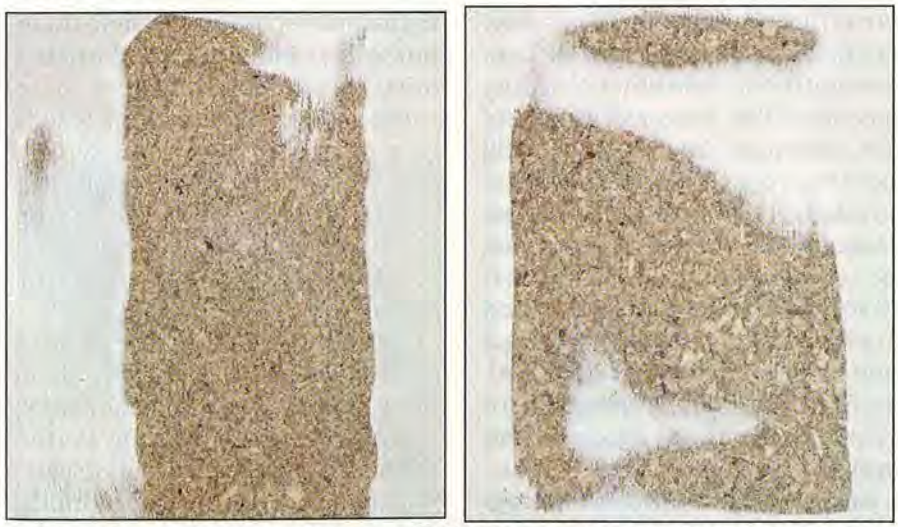
Cloth-backed graphite slip plates conform perfectly to the platen. The lubricating properties of the graphite also help reduce belt friction and heat buildup.

Most manufacturers install a thin, tempered-steel plate backed by a cork or rubber pad. Though it provides a slick surface and lasts about three times longer than graphite, a steel slip plate doesn't always conform to the platen.

Continued

TYPICAL BELT SANDER BASE





A flat platen created an even pattern (left) when sanding polyester-coated particleboard. Uneven marks (right) show the platen had ridges and low spots.

PORTABLE BELT SANDERS

Cloth-backed graphite slip plates (top) conform perfectly to the platen. Tempered steel slip plates (bottom) don't lie flat against the platen along the bend line, a problem compounded when the cork pad compresses under the mounting screws.

Most steel slip plates bend along the leading edge where they attach to the platen, as shown in the photo *above*. We found that every plate of this type cut harder at the bend line than along the rest of the plate.

In some cases, the problem was compounded when the cork pad compressed under the mounting screws. This causes the sharp bend line to pull even farther away from the platen.

Though you can rebend, file, and sand a steel slip plate flat, we recommend spending that time fine-tuning the platen, if it needs it, and installing a graphite slip plate. If the maker of your sander doesn't carry a graphite plate, mail-order outlets such as Klingspor's Sanding Catalogue (800/228-0000) offer cloth-backed graphite padding material from which you can make your own slip plates. It comes in various widths and is sold by the yard.

Of the machines we tested, only the Bosch 1274DVS and the Metabo 0775 come with graphite slip plates as standard equipment. Among those with pad-backed steel plates, the DeWalt DW431 produced the best finish without rebending or fine-tuning.

- **A large sanding surface.** The size of the platen determines how much sandpaper you put in contact with the workpiece at any one time. The bigger the contact area, the more stock a sander will remove, regardless of belt size, although longer belts will outlast shorter ones. For example, among the sanders we tested, the 3×21" Bosch 1274DVS had the third largest platen (3×5⅞"), topped only by the two of the 3×24" models. See the chart on *page 72* for a comparison of the different platen sizes.
- **Good balance and handling.** How a belt sander feels in your hands directly impacts your success in using it. Weight, balance, and even handle placement all factor into the comfort equation.

Editor's Note: To test this theory, we had product tester Bob McFarlin, project builders Jan Svec and Chuck Hedlund, and general-interest editor Kerry Gibson "test-drive" and rate each sander's handling characteristics. While each had his individual favorite, the ratings in the chart represent an "average" score.

Motor configuration plays a key role in the balance of a belt sander. Transverse machines, such as the Porter-Cable 360VS shown opposite page, *top left,* have universal motors mounted across the width of the body. The motor arbor turns in the same direction as the rollers with power transferred via a drive belt.

The sideways motor and drive belt make transverse machines tall and wide. This higher center of gravity makes them slightly top-heavy and prone to tip toward the side with the drive belt.

In-line machines, like the Ryobi BE-321 shown opposite page, *top right,* have a motor that runs parallel to the length of the sander. Since the arbor rotates at 90° to the rollers, in-line sanders use a right-angle speed reduction transmission to shift the power to a drive belt and the rollers.

The in-line configuration results in a narrower machine, with a low center of gravity. While less prone to tipping, most in-line machines require two hands due to the placement of the rear handle behind the machine.

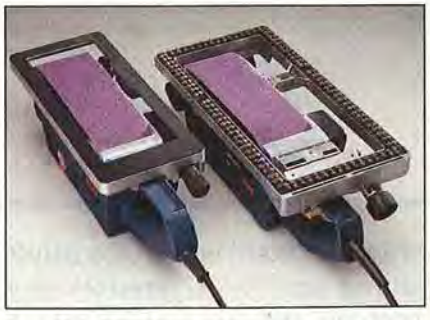
Generally, the larger size of most transverse machines makes them heavier than in-line machines, with the exception of the Porter-Cable 503. This heavy-duty classic weighs in at nearly 15½ pounds, due to its cast-aluminum body, worm-gear transmission, and

Mounting the motor transversely, as in the Porter-Cable 360VS (left), creates a high profile, although the handle remains near the center of gravity. An in-line motor design, used in the Ryobi BE-321 (right), creates a low-slung, compact design with good balance.

chain-drive mechanism. Yet the 503's weight and balance let you run it with one hand on flat surfaces, as do some of the other heavier models.

Lightweight models like the DeWalt DW431 require more hand pressure on flat surfaces, but provide excellent control when edge-sanding stock. Consider what type of sanding you'll be doing most when you buy.

• **Sanding frame compatible.** If you plan to do much panel work, seriously consider buying a model that you can equip with a sanding frame, such as those shown at *left below*. Even models that did only a fair job of sanding flat on their own did much better with a frame attached. And, like platen size, the bigger the frame, the better.



Sanding frames come with a phenolic base (left) or ride on hundreds of small brushes (right). We found that the latter glided more smoothly on flat workpieces.

None of the sanders tested come with sanding frames, but the chart lists those for which frames are available. The optional frames range in price from $60 to $120.

Other factors to consider

Besides the key points mentioned previously, we also took a look at the sanders' performance in the following areas:

• **Dust control.** You can't use a belt sander without generating huge amounts of fine dust, so how well a sander picks up the dust deserves serious consideration. We found the DeWalt DW431, Metabo 0775, Bosch 1275DVS, and Porter-Cable 503 excellent at picking up dust. Others left varying amounts of dust on the work surface, and a few actually blew dust around the shop. Only the Sears 117120 comes without a dust bag.

You can connect a vacuum hose to several models, but we found this option a mixed blessing. The slight increase in dust collection wasn't worth the added noise of the vacuum and trying to sand with a vac hose flopping around.

• **Power.** The machines all have the power to do the job, but those with higher amperage motors have the muscle to do it quicker. If you plan to do some heavy-duty sanding, such as large panels for doors or tabletops, choose a model that draws 8 amps or more.

• **Speed control.** A number of models offer variable-speed control (see the photos on the *next page, top*), and we recommend it for most home woodworkers. Slower speeds give you more control on veneer and edge-sanding tasks, and help prevent burning or gumming up a belt on plastics, particleboard, and during paint removal. If you're only interested in removing wood quickly, one speed will handle the job.

• **Noise.** Belt sanders roar. To find out how much, we measured the noise level from a distance of 24". As noted in the chart, only six registered under 100 decibels, a tolerable level for runs of a minute or two, although we suggest wearing hearing protection when using any belt sander for extended periods of time.

• **Bearings.** Nothing wears out bearings quicker than fine dust and grit, so look for a sander with

Continued

PORTABLE BELT SANDERS

Placement of the variable-speed controls varied. Our favorite was on the Bosch 1274DVS (top left), which has it built into the trigger switch. We also found the handle-mounted speed dials convenient on the Ryobi BE-321 (left) and the Porter-Cable 360VS (above).

sealed or needle bearings in both the motor and lower-drive assemblies. Even then, most manufacturers recommend replacing these bearings based on hours of use. Periodically cleaning out your sander with a blast of compressed air can help extend the machine's life.

• **Belt release and tracking.** A good belt-release system makes changing belts quick and painless—an important point since the belt tensioning springs can deliver quite a pinch. The belt tracking adjustment should quickly align the belt and keep it there.

THE LOWDOWN ON 14

	BRAND	MODEL	BELT SIZE (WxL) (INCHES)	NUMBER OF SPEEDS	BELT SPEED (FEET PER MINUTE)	PLATEN SIZE (WxL) (INCHES)	PLATEN MATERIALS (1)	SLIP PLATE (2)
3 x 21" BELT SANDERS	BOSCH	1274DVS	3 x 21	VS	550-1100	3x5 7/8	C	G
	DEWALT	DW431	3 x 21	VS	475-1100	3 x 4 3/4	C	C
	HITACHI	SB75	3 x 21	2	1180, 1475	4 5/8 x 4 3/4	C	RS
	MAKITA	9901	3 x 21	1	1246	3 1/2 x 4 1/4	F	C
		9900B	3 x 21	1	1300	3 7/8 x 4 3/4	SS	C
	METABO	0775	3 x 21	1	1300	3 x 4 3/4	C	G
	PORTER-CABLE	352VS	3 x 21	VS	850-1300	3 x 4 7/8	SS	C
	RYOBI	BE-321	3 x 21	VS	775-1148	3 x 5 1/4	C	S
	SEARS	117131	3 x 21	1	1300	3 1/2 x 4 3/4	SS	C
		117120	3 x 21	1	1100	3 1/2 x 4 5/8	SS	C
3 x 24" BELT SANDERS	BOSCH	1275DVS	3 x 24	VS	1150-1550	3 x 6	CM	C
	MAKITA	9924DB	3 x 24	1	1300	3 7/8 x 6 1/4	SS	C
	PORTER-CABLE	503	3 x 24	1	1500	3 x 5 5/8	C	C
		360VS Whisper	3 x 24	VS	1000-1500	3 x 5 1/2	C	C

NOTES

1. (CA) Cast aluminum
   (CM) Cast magnesium
   (FP) Formed plastic
   (SS) Stamped steel
2. (CS) Cork pad, steel plate
   (G) Graphite pad
   (RS) Rubber pad, steel plate
   (S) Steel plate, no pad
3. (T) Transverse
   (IN) In-line
4. (BB) Brass bushings
   (NB) Needle bearings
   (OP) Open ball bearings
   (S) Sealed ball bearings
   (SH) Shielded ball bearings
5. (K) Twist knob
   (L) Lever
   (P) Push front roller
6. E Excellent
   G Good
   F Fair
   P Poor
7. E Flat, even pattern
   G Very slight crown in center
   F Even pattern only half size of platen
   P* Cut groove at front edge of base. Performance can be improved to good or excellent with addition of graphite pad.
8. E Effortless to open and close
   G Easy to open and close
   F Difficult to open, snaps shut
   P Must push on front roller

Bosch 1274DVS
WOOD MAGAZINE EDITORS' CHOICE $150-200 1997 TM
Ryobi BE-321
WOOD MAGAZINE EDITORS' CHOICE UNDER $150 1997 TM
PORTER-CABLE
Porter-Cable 503
BOSCH
Bosch 1275DVS
WOOD MAGAZINE EDITORS' CHOICE OVER $250 1997 TM
WOOD MAGAZINE EDITORS' CHOICE $200-250 1997 TM

Which "beast" would we buy? Among the 3×21" models, we chose the Bosch 1274DVS among the sanders priced over $150. Its large, flat platen, standard graphite slip plate, good handling, and a

WOOD-HUNGRY PORTABLE BELT SANDERS

MOTOR POSITION (3)	AMPS	MOTOR BEARINGS (4)	LOWER DRIVE BEARINGS (4)	BELT RELEASE (5)	PERFORMANCE (6) FLATNESS OF BASE (7)	EASE OF BELT RELEASE (8)	BELT TRACKING (9)	EDGE SANDING (10)	FLUSH CORNER SANDING (11)	HANDLING	POWER	DUST CONTROL (12)	WEIGHT (POUNDS)	NOISE LEVEL (DECIBELS)	OPTIONAL ACCESSORIES (13)	COUNTRY OF ASSEMBLY (14)	SELLING PRICE (15)	COMMENTS
IN	6.6	S	S	L	E	G	E	E	G	E	G	G	7.1	98	F, H, HS, SF, VS	SW	$170	Our top pick among the 3X21" sanders. Offers large sanding area in a compact, easy-to-handle package. Optional accessories enhance its functionality.
T	5.2	S	S	L	G	G	G	E	G	F	G	E	7.6	96	SF, VS	I	190	Light in weight and produced flat finish. Good at edge sanding. Some testers felt handles placed too close together for comfort.
T	8.7	SH	SH	L	P*	F	E	G	G	F	E	G	10.3	103	HS, SF	S	155	Good performance at a reasonable price.
T	6.7	OP	OP	L	P*	F	F	G	G	P	G	G	7.5	100	F, HS, SF	J	170	Extremely light in weight. Ridges in slip plate produced uneven sanding pattern.
T	7.8	S	S	L	P*	E	E	G	G	G	G	F	10.6	101	SF	J	180	Good performance, but stamped steel platen wasn't flat.
IN	5.5	SH	SH	K	E	E	E	G	E	F	G	E	10.8	104	F, HS, SF, VS	G	250	Performed well, but handle seemed awkward. Not widely available.
T	7.0	NB	S	L	P*	G	E	G	G	G	E	F	11.3	102	GP, H, VA	U	165	Solid, well-built sander.
IN	6.0	S	S	L	P*	G	E	E	G	E	G	G	7.4	98	F, HS, SF	C	140	Similar to the Bosch 1274DVS. Handles well and represents an excellent value.
T	7.5	BB	NB	L	P*	F	F	F	G	P	F	P	8.6	102	VA	U	65	Lacks many features on other models tested.
T	4.7	BB	NB	P	F	P	P	F	P	P	F	P*	7.6	104		U	60	Lowest priced sander in test, but lacks dust collection.
T	10.5	S	S	L	G	E	E	F	P	G	E	E	12.8	96	GP, H, HS, SF	U	220	Packed with features, it also has plenty of power and excellent dust collection.
T	7.8	S	S	L	G	E	E	G	G	G	G	G	10.9	102	SF	J	185	Despite a stamped steel platen, this machine turned in good-to-excellent performance at a reasonable price.
IN	9.0	S	S	L	P*	G	E	F	P	E	E	E	15.4	96	GP, H, VA	U	400	If you have the money, here's your machine. While too heavy for edge sanding, it's a joy to use and will last forever.
T	12.0	S	S	L	P*	G	E	F	P	G	E	F	14.7	97	GP, H, VA	U	220	Another heavy-duty model from Porter-Cable. A graphite slip plate (available as an optional accessory) would make it an excellent performer.

9. E Micro-adjust tracking, stays tracked
   G Difficult to track, stays tracked
   F Easy to track, wanders when sanding
   P Difficult to track, wanders when sanding

10. Ability to edge sand on 3/4" stock.

11. E Sands flush, excellent visibility
    G Sands flush, poor visibility
    F Difficult to sand flush, good visibility
    P Difficult to sand flush, poor visibility

12. * No dust bag

13. (F) Fence
    (GP) Graphite slip plate
    (H) Hose
    (HS) Horizontal stand
    (SF) Sanding frame
    (VA) Vacuum attachment
    (VS) Vertical stand

14. (C) China
    (G) Germany
    (I) Italy
    (J) Japan
    (S) Singapore
    (SW) Switzerland
    (U) United States

15. Selling price based on catalogs and advertisements at time of article's production.

MANUFACTURERS' LISTING:

Bosch (S-B Power Tools)
800/815-8665

DeWalt
800/433-9258

Hitachi
800/362-7297

Makita
800/462-5482

Metabo
800/638-2264

Porter-Cable
800/487-8665

Ryobi
800/525-2579

Sears
Call or visit your local Sears store.

host of accessories make it the best overall choice. The similar-looking Ryobi BE-321 was our pick among sanders under $150.

Turning to the 3×24" machines, the Porter-Cable 503 belongs in a class by itself in terms of both construction and cost. Buy this professional-quality machine if you want a machine you can use and then pass down to your great-grandchildren.

If you're not worried about a legacy, then consider the Bosch 1275DVS. Our choice among models priced $200-$250, it still will last even a serious home woodworker a lifetime.

Written by Kerry Gibson Technical consultant: Bob McFarlin Illustration: Roxanne LeMoine Photographs: Bill Hopkins Jr.

WILD

A snappy two-wheeler

We're not just guessing that preschoolers will love this high-style sidewalk bike. We know it. We turned ours over to a group of 4½-year-olds for road testing, and had a hard time getting it back for photography.

Print this article

The frame comes first

1 Cut stock for part A (we used pine) to the size shown in the Bill of Materials. Cut out the frame pattern (it's in the *WOOD PATTERNS®* insert in the middle of the magazine) along the rectangular outline. Adhere the pattern to the stock with spray adhesive.

2 Bandsaw the lower part of the frame, leaving the top edge of the stock straight.

3 Stand the partially cut part on its top edge on your drill-press table. Chuck a ½" bit in the drill press, and drill a hole through the front of the frame where shown. Center the hole side-to-side.

4 Finish bandsawing the frame. Drum-sand the curves smooth where necessary.

5 Transfer the start and stop points for the round-overs and the locations for the seat-screw pilot holes from the pattern to the edge of the part. Remove the pattern, then mark the round-over start and stop points on both faces of the frame. Mark the screw holes at the center of the piece.

6 Install a ⅜" round-over bit in your table-mounted router. Rout the round-overs on both sides of the frame.

7 Cut two blanks for the fender (B) to the size shown, and temporarily laminate them with double-faced tape. Cut out the pattern for the fender, and adhere it to the stacked blanks.

8 Bandsaw the stacked blanks, leaving the line. Sand to the line. (We sanded the outer edge with a disc sander, the inside one with a drum sander.)

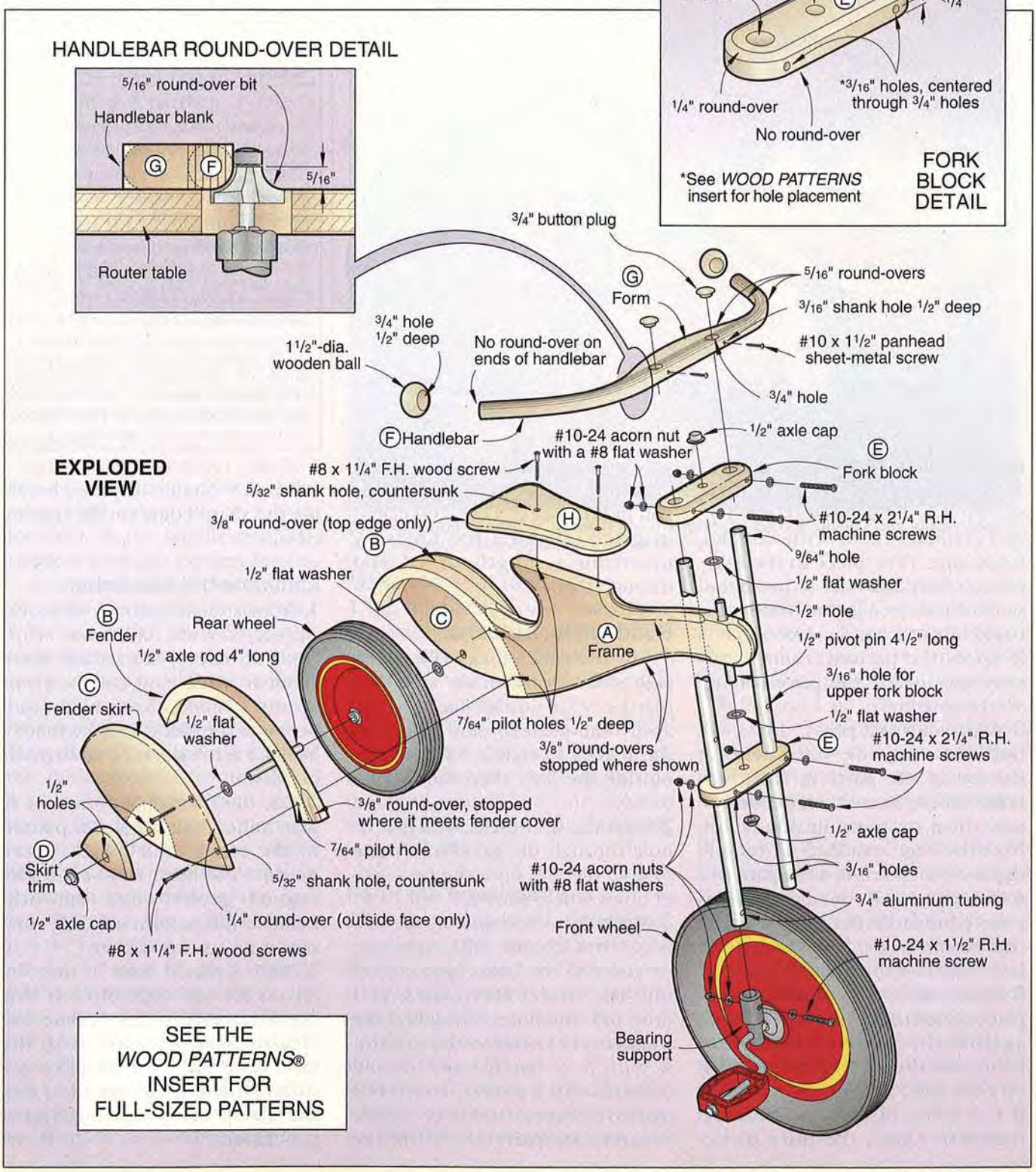
9 Transfer the round-over stop point to the edge, remove the pattern, and mark the two outer faces of the stack. Rout the two outer faces as you did the frame, then separate the parts. (We pried them apart with a putty knife.)

10 Referring to the Exploded View drawing, glue the two parts to the frame, with the unrouted face of each against the frame.

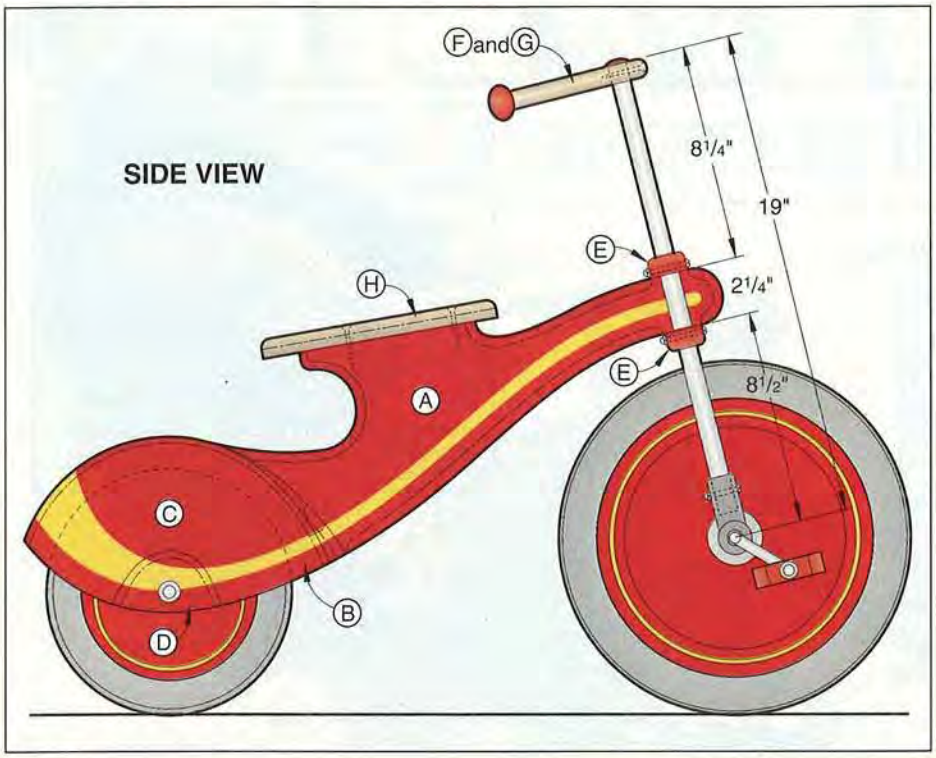
Continued on page 76

WHEELS

for kids on the move



WILD WHEELS



Bill of Materials					
Part	Blank Size			Matl.	Qty.
	T	W	L		
A frame	1 1/16"	9¼"	30"	C	1
B fender	¾"	5½"	13"	C	2
C fender skirt	¼"	7½"	13"	MP	3
D skirt trim	¼"	3"	5"	MP	3
E fork block	¾"	2"	6⅛"	B	2
F handlebar strip	¾"	⅛"	26"	B	6
G form	¾"	8"	21¼"	B	1
H seat	¾"	5"	9⅝"	B	1

Cut blanks for parts to these sizes initially. Then, cut to finished size and shape in accordance with the how-to instructions.

Materials Key: B—birch, C—choice (clear pine or hardwood), MP—marine-grade plywood.

Supplies: Wheels (see Buying Guide), ¾×37" aluminum tubing; ½×9" steel rod; four ½" axle caps; six #10-24 acorn nuts; two #10-24×1½" roundhead machine screws; four #10-24×2¼" roundhead machine screws; two #10×1½" panhead sheet-metal screws; 12 #8 flat washers; four ½" flat washers; six #8×1¼" flathead wood screws; two 1½" wooden balls; two ¾" button plugs; Scotch 471 tape–¼", ½", ¾"; Krylon spray paint–no. 1301 clear acrylic, no. 1315 white, no. 1813 daisy yellow, no. 2108 banner red.

Add the fender skirts

1 Cut three blanks to the size shown for the fender skirts (C), and laminate them with double-faced tape. (The piece in the middle acts only as a filler to make the stack thick enough for routing. It could be cut from scrapwood.)

2 Apply the pattern, then bandsaw just outside the pattern line. Sand to the line.

3 With your drill press, drill a ½" hole through the stack where shown on the pattern. Drill 5/32" holes where shown, and countersink them on both outside faces. Note the edge specified for rounding over, then remove the pattern.

4 Change to a ¼" round-over bit in your table-mounted router. Rout the round-over on each outer face. Separate the parts.

5 Glue and clamp the skirts in place, putting the unrouted faces against the fender. Drill pilot holes, and drive in the two screws on each side.

6 Cut three blanks for the skirt trim (D). Again, the third piece serves as a filler for routing. Stack, cut, drill, and rout the pieces as you did the skirts. Glue and clamp in place, aligning the holes by inserting a length of ½" rod through them.

Build the fork blocks

1 Cut the fork blocks (E) to the size shown. Laminate the two blanks with double-faced tape, apply the pattern, and bandsaw the pieces to shape. Saw slightly outside the line, then sand down to it.

2 With the drill press, drill the ½" hole through the middle. Change to a ¾" bit, and bore the two larger holes where shown.

3 Mark the location for the 3/16" holes, but do not drill them yet. (If you drill the holes before routing, the router-bit bearing will drop into the holes, wrinkling the round-overs.) Remove the pattern.

4 With a ¼" round-over bit and table-mounted router, rout both outside faces of the stack. Separate the parts, then drill the 3/16" holes. Sand the parts, breaking the sharp edges on the unrouted side.

Laminate the handlebar

1 From straight-grained ¾" stock, rip six ⅛"-wide handlebar strips (F). For safety, start with stock about 6" wide, and cut the strips on the outside of the blade (not between the blade and the fence). Install a zero-clearance table insert for this.

2 Cut the handlebar form (G) to size. Adhere the handlebar pattern to the blank, and bandsaw the piece to shape. Disc-sand the curved front edge smooth. Remove the pattern carefully, and save it for use again later.

3 Draw a pencil mark at the center on the top edge of each handlebar strip (F) and on the top face of part G, adjacent to the front edge. Align the marks on the strips with the one on the form, and clamp the pieces together at the center.

4 Working out from the center, bend the strips down to the form, and clamp them without gluing, as shown *right*. Choose clamp types and positions that allow you to pull the lamination strips solidly together. Note your clamping setup, then undo it.

5 Now, spread glue on the front edge of the form (G) in the area shown on the pattern. Position the first strip (F) against the form, then glue on the remaining strips. Align the center marks, and clamp the center. Using the clamping setup from the dry-clamping exercise, pull the lamination to the form. Clamp overnight.

6 Unclamp the lamination. Scrape off any dried glue squeeze-out. Replace the pattern on part G, and bandsaw the inside curve to shape. Drum-sand the handlebar's inside curve, and disc-sand the outside one.

7 Mark the centers for the 3/16" holes on the middle of the handlebar's front edge. Place a fork block (E) on the handlebar, positioning it over the centers for the ¾" holes. Adjust the block so its front edge lies flush with the front of the handlebar, then fasten the block in that position with double-faced tape. Using the fork block as a guide, bore two ¾" holes through the handlebar.

8 Install a 5/16" round-over bit in your table-mounted router. Rout all edges of the handlebar, taking four or five light cuts to prevent tearout. Drill the 3/16" holes where shown. Cut the handlebar ends to the length indicated on the pattern. Remove the pattern, and sand the handlebar.

9 Bore a ¾" hole ½" deep in each of two 1½" wooden balls. Grip each ball in a handscrew clamp, and bore the hole with a drill press. File or sand the handlebar ends to fit into the holes, if necessary. Sand the balls, but do not glue them to the handlebar ends.

Dry-clamp the handlebar strips (F) to the form (G) before gluing. This allows you to work out your clamping scheme ahead of time.

Make the seat next

1 Cut the blank for the seat (H) to the size shown. Adhere the full-sized pattern to the blank.

2 Bandsaw the seat. Sand the edge and faces smooth.

3 Drill and countersink the 5/32" holes where shown. Install a ⅜" round-over bit in your table-mounted router, and rout around the top edge of the seat. Sand the seat for finishing.

Paint the small parts

1 Fill the screw holes in the fender skirts. (We used Durham's Rock Hard Water Putty.) Once the filler dries, sand it flush. Finish-sand all parts. Ensure that the fender and skirts are flush. Remove all sanding dust.

2 Mask off the seat-attachment surface on the frame, the stems on two ¾" button plugs, and the holes in the handlebar-end balls. (We stuck the balls on the ends of a ¾" dowel.) Then, prime-paint the frame assembly, the fork blocks, the balls, and the plugs. (We sprayed on Krylon no.1315 sandable, all-purpose white primer.) Allow the primer to dry thoroughly. Sand any rough or uneven spots, then apply another primer coat, if necessary.

3 Apply a durable clear finish to the handlebar and seat. (We used Krylon no. 1301 clear acrylic coating.) First, mask off the area on the bottom of the seat that mates with the frame and ⅜" at the handlebar ends. Also stuff paper into the ¾" holes through the handlebar to keep finish out of them.

4 Paint the fork blocks, buttons, and balls red. (We applied Krylon no. 2108 banner red.)

Continued

A strip of ¾"-wide masking tape establishes the reference line parallel to the edge of the frame. We used Scotch #471 tape for masking.

Place tape over the diamond cutouts in the pattern to affix it to the frame. The pattern serves as a guide for taping an outline of the stripe, so it cannot be taped down along the edge.

Give the bike a flashy finish

1 Now, paint the frame. Our method for painting the yellow-striped red frame begins with a coat of yellow over the entire frame. (We chose Krylon no. 1813 daisy yellow.) For easy painting, pass a dowel through the axle holes, and tie a rope or wire around it between the fender skirts to hang the frame. Allow this coat to dry at least 24 hours.

2 Mask off the area that will be the yellow stripe. Here's how:

- First, establish a reference line ¾" up from and parallel to the bottom edge of the frame. To do so easily, lay on a strip of ¾"-wide masking tape flush with the edge, as shown *above left*. Instead of ordinary crepe-backed masking tape, we masked with Scotch no. 471 tape, bought from an automotive-paint supplier. Paint won't bleed under this masking tape, employed by auto painters for two-toning, so you'll get a crisp separation between the red body and yellow stripe. We used three tape widths in painting the bike—¼" (no. 06405), ½" (no. 06408), and ¾" (no. 06409).
- Next, carefully cut out the stripe patterns (one on the frame pattern, one on the skirt pattern). With a sharp knife, cut out the diamond windows in the patterns. Position the patterns on the bike, aligning the lower edge of the pattern with the top edge of the tape line. Fasten the pattern in place by pressing a piece of tape over each window, shown *above*.
- Then, tape around the patterns, shown *above right*, forming a guideline around the stripe. The ¼" tape works well for this. Stretch it on the outside for a smooth curve as you follow the rounded end of the stripe. Connect the guidelines on the

Construct the front fork

1 Cut two 18¼" lengths of ¾" (actual outside diameter) aluminum tubing. (We bought ours at a homecenter.) A tubing cutter or hacksaw and miter box will help ensure square cuts. Remove any burrs left by cutting, and sand the tubes with 220-grit abrasive to give them a brushed look.

2 Measure the thickness of two ½" washers. Add 2¼" to the measurement. Then, cut two pieces equal to that total length from ¾×2" scrapwood. These will serve as spacers when assembling the fork. Also cut three ¾×2×7½" scrapwood pieces.

3 Place the two fork blocks on a flat surface, the screw holes facing up and the faces without round-overs together. Insert the two short spacers between the blocks (see the photo *below*). Arrange the three longer pieces as shown, then clamp.

4 Slide the aluminum tubes through the holes in the fork blocks. Push them in until they stop on the crosspiece at the bottom. Chuck a 5/16" bit in your portable drill, and drill through the tubes, guiding through the holes in the blocks.

Place the short spacers between the fork blocks when assembling the fork. Push the tubes in until they contact the stop.

5 Slip a #8 flat washer on a #10-24×2¼" roundhead machine screw. Insert the screw through the holes in the fork block and tube, and install a washer and acorn nut on the other end. Do this for all four holes.

6 Grip the front wheel assembly in a vise or handscrew clamp to stand it up. Fit the bottom ends of the fork tubes (the long ends) into the bearing supports on the wheel. Press them in until they bottom. Guiding through the holes in the bearing supports, drill 5/16" holes through the tubes. Remove the wheel after drilling the holes.

Tape around the pattern outline. Don't overlap the edge of the pattern while masking—you'll be removing it later.

After removing the pattern, mask the stripe area. Tape must not overlap the guide strips, as they will be removed.

With the stripe masked off, paint the entire frame red. Removing the tape will then reveal the yellow stripe.

frame with those on the skirt, using strips of tape. Once you have outlined the pattern on the frame and fender skirt, remove the patterns. Repeat the taping procedure on the other side of the bike. To affix the patterns, just peel the tape from the diamond windows, and put it on the other side. Once you have taped both sides, connect the guidelines across the fender to continue the stripe across the back.

• Lay ¼" tape along the inside of the guidelines, in the area where the patterns were. Do not overlap this tape onto the guidelines—you will be removing the taped guidelines later. Press the tape firmly into the corners (we used a putty knife), as shown *above*. Fill in the entire area inside the guidelines, then remove the guidelines, leaving a taped stripe.

3 Clean off any dust or bits of tape, and ensure that all the tape edges are stuck down firmly. Now, you're ready to paint the bike red, as shown *above right*. Spray on the banner red paint in a smooth, even coat. Cover the frame with one coat; building up coats forms a ridge along the edge of the stripe.

4 Allow the paint to dry, then carefully peel off the masking tape. You can lift a corner of the tape with a knife point to start, but be careful not to poke the point into the paint.

5 Dust off the surface. Spray on two coats of clear finish, following the can label's recommendation for time between coats. Clear-coat the wooden balls, the buttons, and the fork blocks, too.

6 Add accent stripes to the wheels, if desired. (We decorated ours with ¼" yellow striping tape, also purchased from an automotive-paint dealer.)

7 Install the handlebar on the fork, with the acorn nuts pointing toward the rear. The tops of the tubes should be 3/16" below the top surface of the handlebar.

8 Guiding through the 3/16" holes in the handlebar, drill 9/64" holes through the tubes. Drive in #10×1½" sheet-metal screws to secure the handlebar to the fork.

9 Glue the buttons into the holes atop the handlebar, then glue the balls to the ends. Clean off the dust, and clear-coat the assembly. Allow to dry overnight.

Assemble the bike

1 For the fork pivot pin, cut a 4½" length of ½" steel rod (we bought ours at a homecenter). Drive a ½" axle cap onto one end.

2 Clamp the bottom end of the fork tubes in your vise, then position the front of the frame between the fork blocks. Slide the end of the steel rod into the hole in the bottom fork block. Place a ½" washer between the bottom of the frame and the top of the block, then push the rod on into the hole in the frame. Place another washer between the top of the frame and the upper fork block, and push the rod on through the upper fork block. Place an axle cap onto the top of the rod, then press it home with a handscrew clamp.

3 Cut a 4" length of ½" steel rod for the rear axle. Drive an axle cap on one end. Insert the rod through the axle hole on one side of the frame, through a ½" washer, the back wheel, another washer, and out the other frame hole. Press an axle cap on the end.

4 Insert the ends of the fork tubes into the axle supports on the front wheel. Fasten with #10-24×1½" roundhead machine screws, #8 washers, and #10-24 acorn nuts.

5 Finally, spread some glue on the frame where the seat will attach. Position the seat, and drive in two #8×1¼" flathead wood screws.

Buying Guide

Wheels. Front wheel and bearing assembly (PW339R) and rear wheel (PW334R), $80.30 ppd. in U.S. Angeles Group, 9 Capper Drive, Dailey Industrial Park, Pacific, MO 63069.

Lumber. Kit containing lumber and marine-grade plywood for one bike, kit W100, $44.95 ppd. in U.S. Heritage Building Specialties, 205 N. Cascade, Fergus Falls, MN 56537, or call 800/524-4184.

Project Design: James R. Downing Illustrations: Kim Downing; Lorna Johnson Photographs: John Hetherington; Dean Tanner

The amazing evolution of WOODWORKING

In just a little over 100 years, we've gone

Machines began replacing individual handwork in the 19th century. In the new American factories, mechanical power—produced first by water, then steam, and finally electricity—took over from traditional muscle power.

It was a logical step to mechanize hand tools. At the turn of the century, powering them with electric current made sense.

But the first power tools were made for professionals—those who used them the most could best afford their price. However, the Great Depression made the public cost conscious, and reluc-

1895

In Germany, C.E. Fein invents the world's first electric hand drill. With a DC motor, it weighs 16.5 pounds and drills 3/16" into steel with its 1/2" bit.

1916

Black and Decker markets the first portable, 1/2" electric drill with pistol grip, trigger switch, and universal motor.

1919

Syracuse, New York, patternmaker R.L. Carter founds the R.L. Carter Company to manufacture the first electric routers, a tool he invented by reworking a barber's clipper.

1922

Raymond E. DeWalt perfects the first radial-arm saw and forms a company to produce the DeWalt Wonder-Worker.

1923

Delta Specialty Company of Milwaukee, Wisconsin, offers a hand-operated, bench-top scrollsaw capable of small motorization.

1924

In Chicago, the Michel Electric Handsaw Company builds the first portable electric circular handsaw. The worm-drive Skil Model E, 8"-blade, 1-hp. saw weighs 10 pounds, and sells for $160. Two years later, its name becomes Skilsaw.

A.F. Seibert establishes Milwaukee Electric Tool and sells the Hole-Shooter, the industry's first lightweight, one-handed electric drill capable of heavy-duty workloads.

1926

Porter-Cable introduces the world's first portable belt sander, "The Takeabout." Five years later, dust collection is added to the tool.

1928

Delta advertises the Handi-Shop, a combination 6" circular saw, lathe, disc sander, and scrollsaw.

Power tools appear for the first time in Sears Roebuck and Company's mail-order catalog.

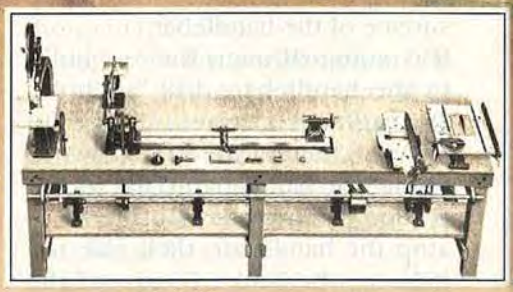
Skilsaw Incorporated pioneers diecast aluminum motor housings.

1929

Delta markets a combination jointer and tablesaw.

Stanley Tools enters the electric tool business.

Porter-Cable debuts a helical-gear circular saw.



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POWER TOOLS

from water power to battery packs

tance to trade a day's meager pay for a carpenter's rate encouraged a trend to do-it-yourself.

The postwar building boom of the late 1940s and 1950s inspired manufacturers to refocus tool production on the consumer, and more and more power tools became available at affordable prices. Today, there's hardly a household without some type of power tool. And what home woodworker has only one to look to in the shop?

The development of power tools is a fascinating story. Like a chess game, it unfolds with the pieces as important as the players.

1931

Sears Roebuck and Company introduces its first Craftsman power tool catalog.

1936

Delta offers a ball-bearing, reversible wood shaper.

1937

Delta develops the first tilting-arbor tablesaw, the Unisaw.

1949

Skilsaw Incorporated enters consumer market with 6" circular saw, 1/4" drill, and for the first time begins distri-bution through hardware stores.

Milwaukee Electric Tool introduces the industry's first right-angle drill, allowing plumbers and electricians to work in tight quarters.

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Milwaukee
RIGHT ANGLE DRILL
the PERFECT Contractors' TOOL
with the RIGHT Speed and Torque to suit MOST Applications for
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1930

Delta first markets a 12" bandsaw and combination lathe, routing, boring, and mortising machine.

1932

A.J. Dremel, a Racine, Wisconsin, engineer and inventor, launches the Dremel Manufacturing Company to sell his electric Moto-Tool to woodworking hobbyists.

1942

Black and Decker uses plastic for the first time in portable drill housings.

1946

Black and Decker introduces the first portable electric drill made for do-it-yourselfers, the Home Utility line.

German Albert Kaufmann equips his wife's sewing machine with a saw blade to cut curves, and invents the jigsaw.

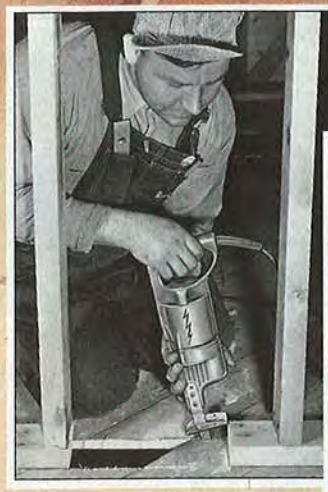
Hans Goldschmidt of Dayton, Ohio, invents a combination woodworking machine that becomes the Shopsmith.

Continued

EVOLUTION OF WOODWORKING POWER TOOLS

1950
Porter-Cable first offers its Model 100 router, a portable power tool still in production.

1951
Milwaukee Electric Tool presents the first portable electric reciprocating saw, still referred to as the Sawzall.



1953
Black and Decker produces the first finishing sander and jigsaws for the consumer market.

1955
Skil perfects method of brazing carbide tungsten to metal.

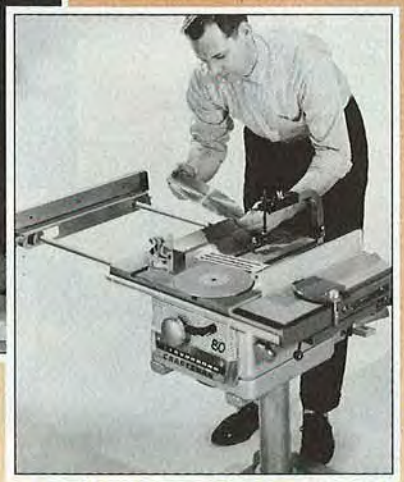
1956
Porter-Cable introduces first portable reciprocating saw with orbital blade.

1957
Black and Decker unveils first heavy-duty routers.

Swiss cabinetmaker Herman Steiner patents the world's first plate (biscuit) joiner and forms the Steiner-Lamello company.

Skil debuts portable oscillating sander, router, and jigsaw.

1959
Sears Craftsman offers the 5-in-1 Power Workshop: 8" benchsaw, disc sander, sabresaw, and jointer-planer in one unit.

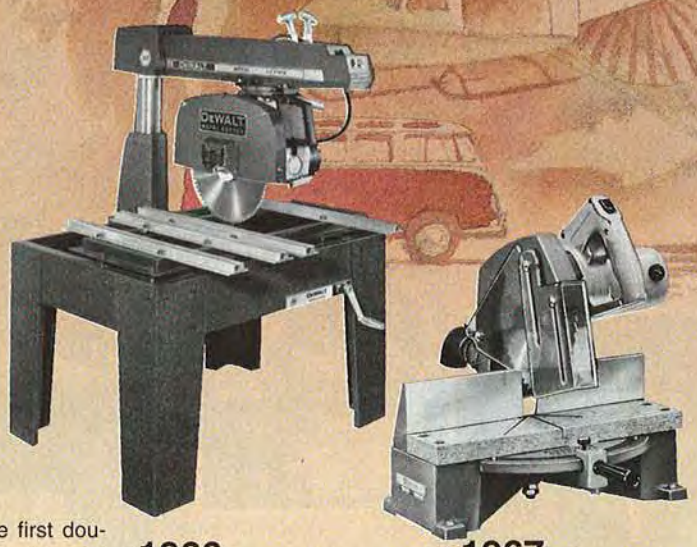


1961
Black and Decker introduces world's first cordless drill, powered by self-contained, nickel-cadmium batteries.

1962
Skil markets the first double-insulated electric tool in U.S., the Model 1706 Roto Hammer for professionals. Also develops, patents, and produces the first variable-speed drill with a trigger speed-control switch.

1963
Sears Craftsman adds the silicon-controlled rectifier on the switch of its 3/8" drill, allowing it to operate at different speeds without losing power.

Porter-Cable patents their first high-speed, small-orbit finishing sander. (The Sterling sander was first offered by them in 1949.)



1966
Black and Decker debuts the new DeWalt line of industrial radial-arm saws.

1967
Rockwell produces the world's first motorized miter box, a 9" model.

1974
Milwaukee Electric Tool presents the first 1/2" professional pistol drill.

1978

Advanced Machinery Imports offers Hegner's West German-designed parallel-arm, walking-beam scrollsaw to the U.S. and stimulates resurgence of scrollsawing.

1980

The Stanley Works sells its portable power tool division to Robert Bosch Company.

1983

Sears Craftsman introduces three portable electric tools—a drill, jigsaw, and sander driven by the same interchangeable power pack.

Makita offers the first easily transportable, high-performance, benchtop tablesaw.

1985

Delta International introduces benchtop tools and the C-arm electronic variable-speed scrollsaw.

1987

Makita launches major cordless power tool campaign offering 15 different 7.2-volt tools that share the same battery pack.

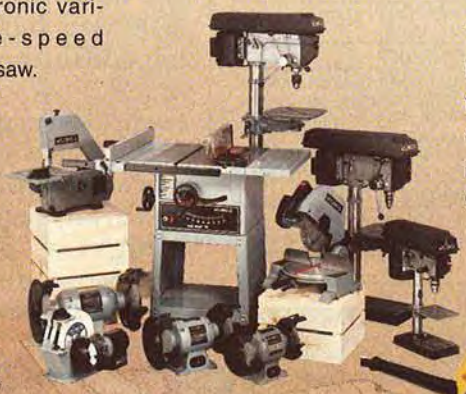
1992

DeWalt comes out with full line of professional-quality portable power tools.

Porter-Cable markets first palm-grip orbital sander.

1995

Porter-Cable produces the first sander developed specifically for sanding profiles, moldings, and odd angles.



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EAGLE MODEL 20
PRECISION SCROLL SAW
rbi industries, inc.

1982

R.B. Industries first markets its American-made, constant-tension, C-frame scrollsaw, called the Eagle.

Working in his garage shop, Michigan patternmaker and inventor Jim Clayton creates the first oscillating spindle sander for the home wood shop.

1984

Black and Decker begins selling its first cordless professional jigsaw.

1986

Performax Products, Incorporated introduces pro-style drum sander for the home shop that adapts to a radial-arm saw.

Sears Craftsman brings out the industry's first electric drill with a keyless chuck.

Ryobi debuts the first portable planer, the AP-10.

Porter-Cable offers micro-technology and digital readout in 3-hp. router for controlling speed to match work.

1988

Black and Decker advances cordless technology with the introduction of Univolt Universal Voltage Charger System featuring interchangeable energy packs.

1993

Fein markets the first triangle-head electric sander.

Sears Craftsman reintroduces a 1952-design benchtop radial drill press with 360° head rotation.

1997

Powermatic debuts its special 2-hp. lathe designed with the input of professional woodturner Rude Osolnik.

Editor's note: The information contained in this power tool time line was gathered with the aid of cooperating manufacturers as well as independent research. Space limitations prevent all-inclusive information. Historical reader input would be appreciated.

Written by Peter J. Stephano Photographs and advertisements courtesy of the manufacturers Illustrations: Brian Jenson

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- Have made or be making their contribution(s) in the 20th century.

To submit a candidate for nomination, please include a short biography of the person and a statement regarding his/her accomplishments and impact on woodworking. Send submissions to *WOOD* Magazine's *Woodworking Hall of Fame*, 1912 Grand Ave., Des Moines, IA 50309-3379. Receipt cannot be acknowledged. A selection committee will select the nominees and vote in each year's inductees. Names will be announced in the October issue.

Find out more about our Hall of Fame members

- Visit Grey Towers, the former family home of forester *Gifford Pinchot* at Milford, Pennsylvania. The USDA Forest Service maintains the estate as a national historic landmark open to the public from April through November.
- If you're in the vicinity, view *Rude Osolnik's* work in the collections of Arrowmont School of Arts and Crafts at Gatlinburg, Tennessee; the Smithsonian Museum's Renwick Gallery in Washington, D.C.; Chicago's Museum of Science and Industry; and the High Museum of Art in Atlanta. Rude's studio is in the hills outside Berea, Kentucky
- See *Judy Gale Roberts'* largest intarsia panel to date (14×20') at Dow Chemical's Oyster Creek, Texas, office, and other pieces at her working studio in Sevierville, Tennessee, near Gatlinburg.
- You'll find *Wharton Esherick's* furniture and sculpture in the collections of New York City's Metropolitan Museum of Art, the Philadelphia Museum of Art, and the Whitney Museum of American Art in New York City. You can see his handcrafted home and studio at The Wharton Esherick Museum, in rural Malvern (near Valley Forge), Pennsylvania, open to the public Saturday and Sunday from March through December.
- You'll view many items from *Frank Knox's* legacy of ornamental turnings at the Wood Turning Center in Philadelphia.
- Marvel at *Silas Kopf's* unparalleled artistry in wood in the permanent collections of the Yale University Art Gallery and the Springfield, Massachusetts Museum of Fine Arts. Silas lives and works in Northampton, Massachusetts, but teaches at workshops and seminars around the nation.
- See the beautiful decorative decoys done by *Lem* and *Steve Ward* in the public displays of the Ward Foundation Museum in Salisbury, Maryland; the American Folk Art Museum in New York City; Birmingham, Alabama's Museum of Art; and the Shelburne Museum, in Burlington, Vermont.

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- Saw and table wood not included

Maximum miter & bevel: 45°; Crosscut: 12-3/4"; Length: 24"; Rip capacity: 15-3/4"; Height: 22"; Weight: 23 lbs.

~~$59.99~~ $49.99
ITEM 33576-1VEA

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Unlocking the mystery of the lock miter bit

I recently purchased one of the lock miter bits you discussed in the February 1996 issue. However, the shape of the bit presents a few unique problems. First, the bit height and the fence position must remain fixed, making multiple passes difficult. Second, I need to hold the workpiece stable during vertical end cuts. Is there a jig, or a pair of jigs, that would help with the horizontal and vertical end cuts?

—David Swick, Accokeek, Md.

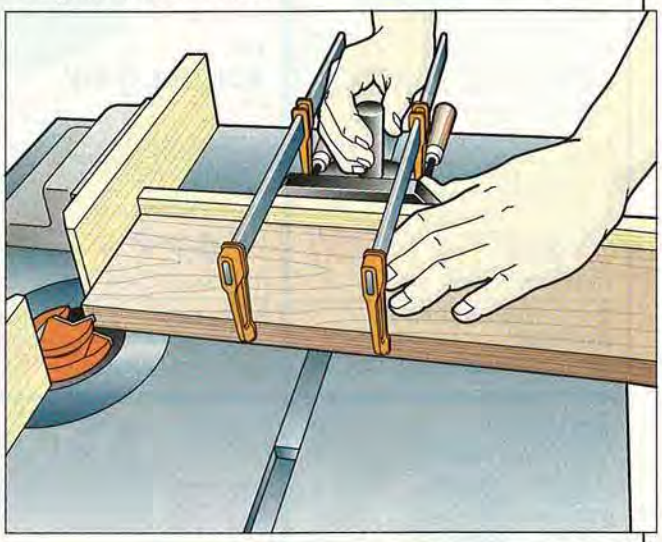
David, we agree that it's a good idea to make multiple passes with large bits like the lock miter bit. You can make multiple passes for horizontal cuts with a miter gauge and extension (see illustration at *right*). Instead of moving the fence, simply move the workpiece toward the fence in increments.

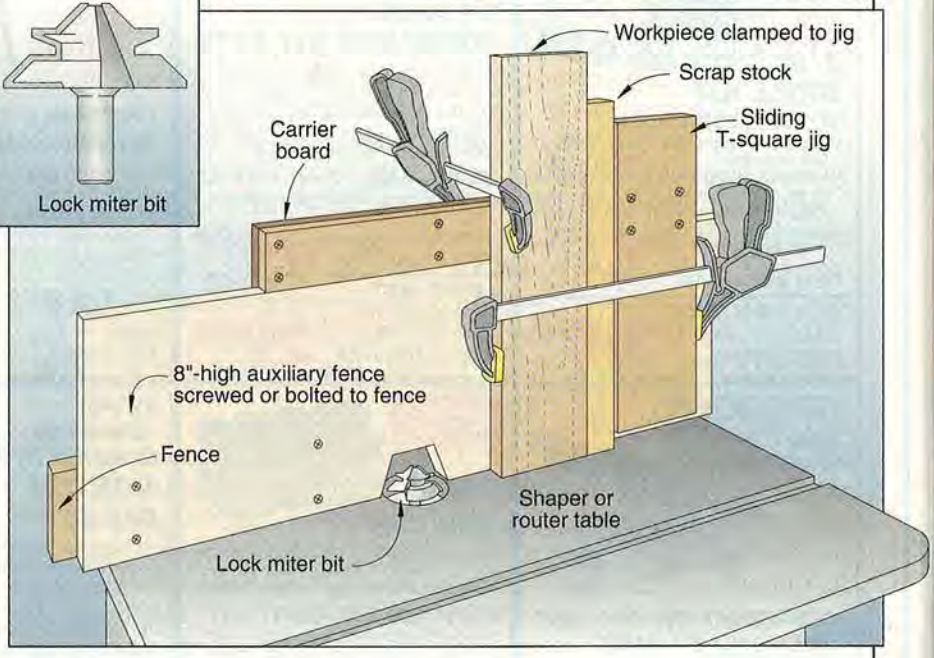
To make vertical end cuts, the auxiliary fence and sliding T-square jig (shown *below)* will help you confidently make accurate, multiple-pass cuts. The auxiliary fence adds height to the original fence, providing a more stable surface for vertical end or edge cuts. It also provides a rail on which the T-square jig can ride, and keeps the workpiece from dropping into the bit opening.

First, make the auxiliary fence at least 8" high and as long as the table. Next, cut an opening for the bit. Then, screw or bolt the auxiliary fence to the existing fence, countersink the heads, and check the fence for square with the table. Finally, construct the sliding T-square jig (see illustration on *page 88*) to stabilize the workpiece for vertical end cuts.

To make multiple passes in a vertical cut without adjusting the fence, use spacers between the carrier board and the workpiece. For instance, to make the joint for ¾" material in three passes, use a ⅜"-thick spacer for the first pass, ⅛" for the second, and none for the last.

Our project builder, Chuck Hedlund, also suggests that when working with the lock miter bit, you hang onto sample pieces of both horizontal and vertical cuts. Saving the samples will help you adjust the fence and bit height the next time you work with your lock miter bit.





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Continued on page 88

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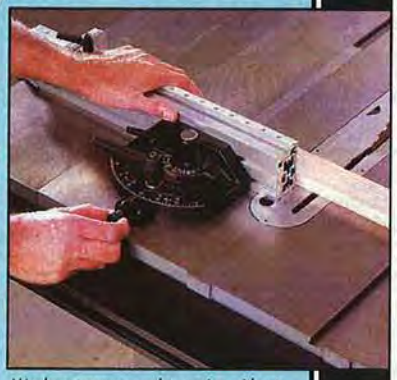

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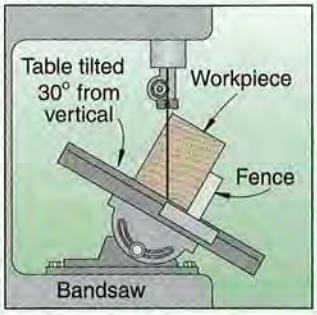
ASK WOOD

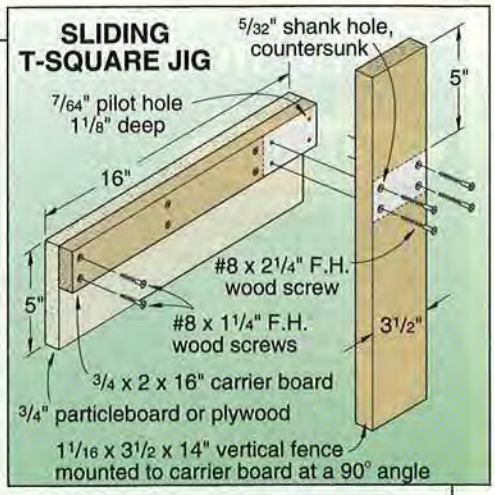
Continued from page 86

But my saw just won't do it

Several projects I've attempted call for a 60° cut, but my tablesaw and bandsaw only go to 45°. Do you know of a technique that will help me?

—Ron Guidici, ronaldgg@airmail.net




SLIDING T-SQUARE JIG
5/32" shank hole, countersunk
5"
7/64" pilot hole 1 1/8" deep
16"
5"
#8 x 2 1/4" F.H. wood screw
#8 x 1 1/4" F.H. wood screws
3 1/2"
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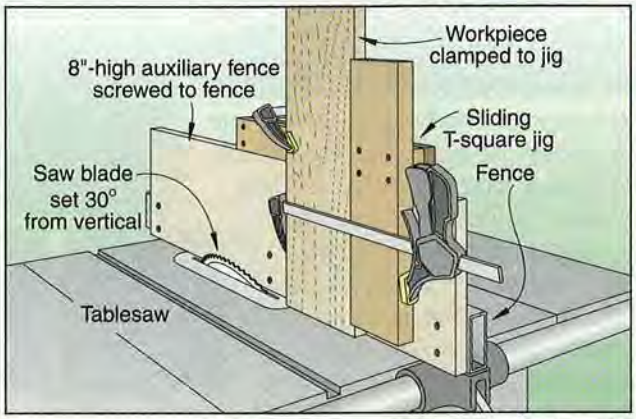
3/4" particleboard or plywood
1 1/16 x 3 1/2 x 14" vertical fence mounted to carrier board at a 90° angle

With the help of fences, Ron, both your tablesaw and bandsaw can make cuts greater than 45° if you go to a vertical cut. To provide a stable surface for the vertical cut, construct an auxiliary fence like the one *right.* Make the fence 8" high and at least as long as your rip fence. Check for square between the fence and the table. For short cuts on workpiece ends, simply clamp the auxiliary fence to your existing rip fence and put the sliding T-square jig to work. For longer cuts, secure the fence with countersunk screws.

To calculate your setting for a cut greater than 45°, subtract the cut angle from 90° to determine where to set the blade (tablesaw) or the table (bandsaw). In your case, 90 minus 60 equals 30. To make the 60° vertical cut on your tablesaw, set the blade at 30°. To make the cut on your bandsaw, tilt the table 30°. In either case, the result will be a 60° cut.



Continued on page 90

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1276DVS	4" X 24" VS DUSTLSS BELT SANDER	218
1584VS	CLIC BARREL HANDLE JIG SAW, VS	142
1584VSW	1584VS JIG SAW W/CASE & 10 BLADES	159
1587VS	TOP HANDLE JIG SAW, VAR SP	142
1587VSW	1587VS JIG SAW W/CASE & 10 BLADES	159
1613EVS	2 HP VAR SP PLUNGE ROUTER	198
1613EVSK	1613EVS 2W/RA1051 DELUXE EDGE GUIDE	208
3310K	12V CRDLS W/T HANDLE W/2 BAT, CS & CHRG	174
3610K	14.4V CDLS DRILL KIT W/2 BATTERIES	194
3725DVS	5" DUSTLESS VS RANDOM ORBIT SANDER	148
3727DVS	6" DUSTLESS VS RANDOM ORBIT SANDER	154
3915	10" SLIDE COMPOUND MITER SAW	578

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8"X40T 3/32"	$136	**$ 99**	**$ 89**	**$ 79**
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New specs, 5° Neg. Pts. & flat, runs out less than .002 for perfect, tight, smooth, splinter-free miter joints.

TAKE EXTRA 10% – 20% OFF COMBO SALE!

NEW SIZES AVAILABLE	LIST	SALE
Delta Sidekick 6-1/2"x40Tx5/8"	$149	**$ 89**
Sears 8-1/4" & Delta 8-1/4"x60Tx5/8"	$170	**$ 99**
Hitachi 8-1/2"x60Tx5/8"	$179	**$109**
DeWalt 8-1/2" & Ryobi 8-1/2"x60Tx5/8"	$179	**$109**
Delta 9"x80Tx5/8"	$204	**$119**
Ryobi–Makita & all 10"x80Tx5/8"	$207	**$129**
DeWalt, Makita, B&D, Hitachi 12"x80Tx1"	$229	**$139**
Ryobi–Makita 14"x100Tx1"	$266	**$179**
Hitachi 15"x100Tx1"	$277	**$189**

For good general purpose cuts use Woodworker II 30T & 40T or Woodworker I. Use small stiffener where possible.

THE ONE BLADE THAT LEAVES A SMOOTH-AS-SANDED SURFACE!

SAVE ANOTHER **$45 to $90** AFTER USING SHARPENING COUPONS

WOODWORKER I – CROSSCUT — 7 1/4" – 14"

For TABLE and RADIAL SAW – 10% to 20%

NON-SPLINTERING PLYS	LIST	SALE
14"x60Tx1"	$224	**$159**
12"x60Tx1" or 5/8" 1/8"K	$198	**$139**
10"x60Tx5/8" 3/32"K	$162	**$129**
8-1/4"X60T	$150	**$109**
8"X60T	$150	**$109**
7-1/4"X60T	$150	**$109**

OTHER SIZES AVAILABLE – 7 1/4" – 14"

DURALINE HI-A/T FOR TABLE & RADIAL SAWS

PORTABLE & PANEL SAWS

5/8" HOLES. Boring up to 1-1/4" $7.50 extra. Larger holes–time basis. Shipping $4.50.

TAKE 10% TO 20% MORE OFF THESE PRICES

Faster feed rates & absolute splinter control. Stops splintering on OAK/BIRCH PLY VENEERS & MELAMINE

SIZES AVAILABLE	LIST	SALE
7-1/4" x 60T x 3/32" K	$149	**$129**
8" x 80T x 1/8" & 3/32" K	$202	**$169**
220mm x 80T x 1/8" x 30mm	---	**$159**
9" x 80T x 1/8" & 3/32" K	$207	**$179**
10" x 80T x 1/8" & 3/32" K	$207	**$159**
12" x 80T x 1-1/8"K	$212	**$181**

SIZES AVAILABLE	LIST	SALE
300mm x 100T x 1/8" x 30mm	---	**$189**
12" x 100T x 1-1/8"K	**$253**	**$215**
14" x 80T x 1"	**$232**	**$197**
14" x 80T x 1"	**$266**	**$226**
16" x 100T x 1"	**$262**	**$243**
16" x 100T x 1"	**$294**	**$243**

Above 1 bore standard.

SPECIAL COMBO SALE EXTRA 10%-20% OFF

CARBIDE IS THE HARDEST OF THE C-4 GRADES AND 40% STRONGER, NOT WEAKER! FOR 50% TO 300% LONGER LIFE.

Standard C-2 Carbide (below, left) and FORREST **still sharp** Oxidation and Corrosion Resistant Sub-Micron C-4 Carbide (below, right). Each shown after cutting 3,500 feet of MDF. Similar results obtained cutting particle board, melamine, and plywood.

STILL SHARP AFTER 3,500 FEET OF CUTTING!

$21 VALUE STARTS AUG. '97

FREE 10" ORANGE PLASTIC BLADE RUNNER–CARRIER!

SHIPPED WITH 6", 8" & 10" DADO SETS. HOLDS UP TO 10 BLADES, 5 PER SIDE ON CENTER BOLT OR DADOS.

DELUXE DADO-KING!

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C-4 Carbide Tips — 4 on each chipper with special negative face hooks. Shims & 3/32" Chipper. Cuts 1/8" to 29/32" wide!!

	LIST	SALE	10%	15%
6" D. 5/8" Bore **NEW**	$299	**$269**	**$242**	**$229**
8" D. 5/8" Bore	$321	**$289**	**$260**	**$245**
10" D. 5/8" & 1" Bore	$389	**$349**	**$314**	**$297**
12" D. 1" Bore	$499	**$449**	**$404**	**$382**

(Bore up to 1-1/4" Add $25 — Plus $5.50 S&H)

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Fine Woodworking Magazine test Oct. 96 page 43

After installing your blade and 5 in. stiffener the vibration in my saw went down another 20%. I ran several pieces of hardwood through the saw, both crosscut and ripping, and was amazed at the smoothness. It was like cutting butter, maybe smoother. I have never had a saw blade that cut this smooth.

Rick Price

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5"	..... $24
6"	..... $25

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REDUCES NOISE 50%–75%

WE RECOMMEND OUR FACTORY SHARPENING as some local sharpening creates problems with **MICRO-CHIPPED EDGES** reducing blade life & cutting quality.
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Circle No.75

ASK WOOD

Continued from page 88

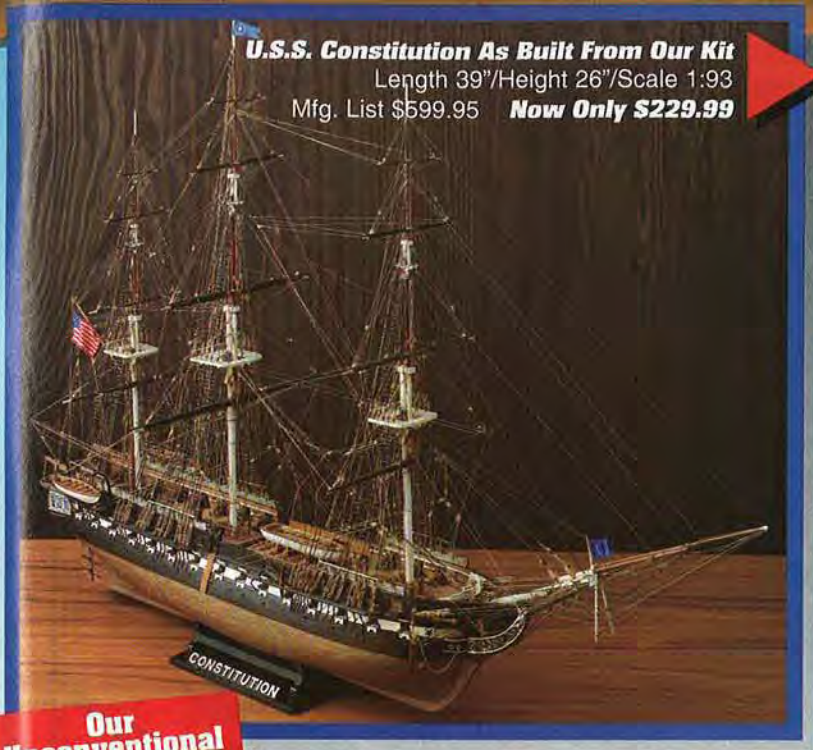
When carbide goes bad

Over the years, WOOD® magazine has answered every question about carbide saw blades except one. How do you tell when a carbide blade needs resharpening or replacement? And, how do you go about getting it sharpened?

—Merwin Willman, Schertz, Texas

Merwin, here are a few clues to help you diagnose the condition of your blade. First, burn spots and the need to slow feed rates indicate a dulling blade. Second, crosscutting with a dull blade will burnish or polish the cut end instead of leaving the pores open. Third, look for a buildup of pitch on the teeth. Pitch will gather on the teeth because a dull blade will build up more heat than a sharp one. Finally, look for chips in the teeth and even for missing teeth.

Our expert tool testers offer these hints about selecting someone to sharpen your favorite blades. Find a sharpener with a good reputation by consulting some of the professional woodworkers in your area. And, make sure they wet-grind with computer-controlled equipment. This method helps maintain the blade's balance and the carbide's temper. Finally, ask if they can offer some versatility in the coarseness of the grind. A coarser grind, like a serrated knife edge, will not cut as cleanly but will hold its edge longer. If you often work with expensive veneers, a finer grind for cleaner cuts might be a better choice.



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It's Much Easier Than You Think!

You need no special skills – just a bit of patience, a few basic tools, paints and glue. Working with precise plans and fine materials, you'll fit the bulkheads to the keel and plank the hull one timber at a time. Then, you'll install deck furnishings and place the cannon on deck. Finally, you'll set the masts and rig the lines – just like the original frigate of two-hundred years ago. The result? An authentically detailed, museum quality wooden ship model you'll display with pride... a valuable keepsake to be treasured for generations.

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Tooling Up for IDEA SHOP® 3

Value, compactness, noise suppression, and efficient dust collection guided our choices

Have you ever wondered what tools the editors of *WOOD*® magazine choose for their own shops? Well, like you, our woodworking interests vary, so each staffer prefers different tools. But, we did manage to put our heads together and agree on a selection of tools and accessories that suit the requirements of IDEA SHOP 3.

First and foremost, we chose quality equipment that performs well and stands up to workshop rigors. But, we didn't throw our budget to the wind. Instead, we kept a close watch on price tags and selected items that we feel are good values.

We also considered the special requirements of our basement space. When it made sense, we chose benchtop machines to save on floor space.

And, we favored products with effective dust collection or noise suppression. For example, the Porter-Cable shop vacuum is quieter than most vacs and has a filter that captures fine dust particles.

To keep down the roar from our saws, we outfitted them with "quiet" circular blades such as the Freud mitersaw blade with noise-dampening features. We muffled the Forrest Woodworker II blade in our tablesaw by sandwiching it between a pair of 4" blade stiffeners.

1. Jorgensen handscrew clamps	10. Skil HD5658 portable circular saw
2. Black & Decker Bullet drill bits	11. Stanley Contractor Grade hammer
3. Makita 3901 biscuit joiner	12. Hitachi DS13DV2B 12-volt cordless drill
4. DeWalt DW621 router	13. Stanley block plane
5. Freud router bit	14. Quick-Grip bar clamps
6. CMT router bit	15. Sears Craftsman Professional adjustable jaws pliers
7. Freud FT2000E router	16. Sears Craftsman ⅜" electric drill
8. Bosch 1584DVS jigsaw	17. Arrow T50 staple gun
9. Porter-Cable model 340 ¼-sheet finishing sander	18. Nicholson wood rasp

In the list on *page 94* we break down the IDEA SHOP 3 tools into four categories for quick reference. Perhaps you'll find a tool or two perfectly suited to your shop!

Bill Krier
Assistant Managing Editor

Print this article

Continued on page 94

Business owners at one of the regular August West training workshops.

Earn $1,000 a Week in Your Spare Time.

Chimney Maintenance: Every Home Needs It!

August West will show you how to clean and maintain chimneys and flues using our state-of-the-art equipment and field proven techniques.

You'll be able to generate sales that range from $65 to $140 per call. And easily earn $1,000 a week in your spare time. More full time.

For less than the cost of a second hand car you can be running "one of the best small businesses in America."

Why Clean Chimneys?

There are nearly one hundred million chimneys, flues and stoves across the continent. Whether they are burning Gas, Oil, Coal or Wood, they *all* need to be cleaned. According to the National Fire Protection Association, they should be cleaned and serviced at least once a year to prevent disastrous fires.

There is an urgent need for this service. And there are very few sweeps.

21 Years of Service

For more than twenty-one years, August West has equipped men and women to clean and service chimneys and flues. We're a national company and 90% of the chimney sweeps in the U.S. and Canada use our system.

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Here's what your part-time weekly income could look like:

2 service calls	=	$180 Mon
3 service calls	=	$250 Wed
3 service calls	=	$230 Fri
5 service calls	=	$380 Sat
		$1,040 weekly

August West Backs You Up

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Jerry Morelle, owner of Magic Dragon Sweeps, leads an August West workshop. Participants learn how to clean and repair chimneys and flues and market fire protection supplies that generate a lot of additional income.

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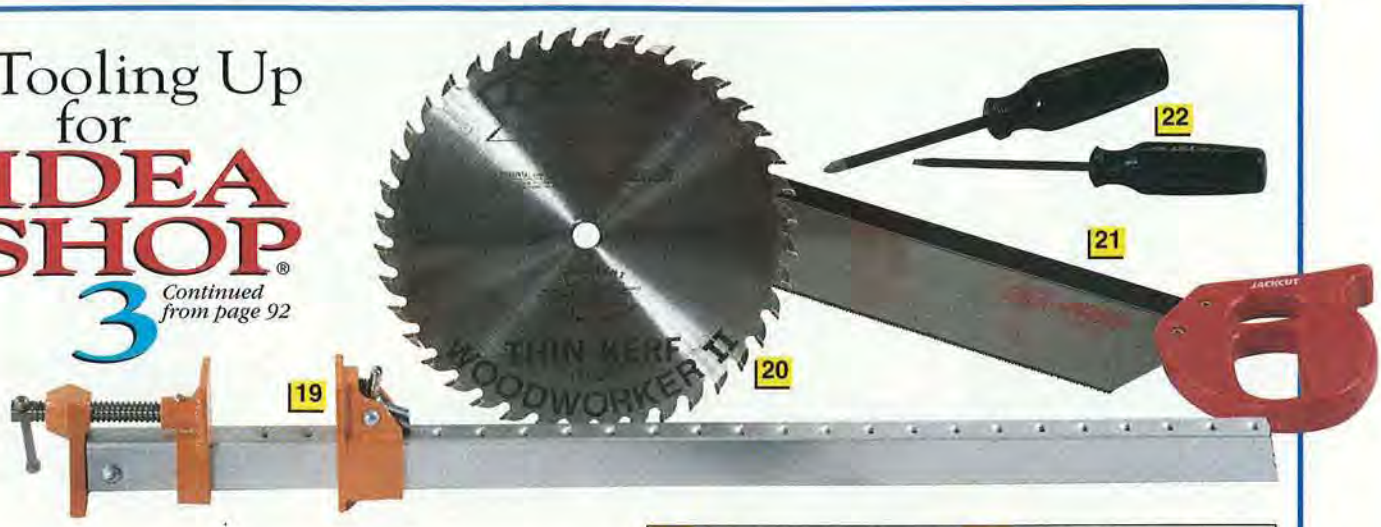
Circle No. 1850

Tooling Up for IDEA SHOP® 3

Continued from page 92



19. Jorgensen aluminum bar clamp
20. Forrest Woodworker II 10" tablesaw blade
21. Jackcut backsaw
22. Sears Craftsman Professional screwdrivers

STATIONARY AND BENCHTOP MACHINERY

4×36" belt/6"disc sander:
Skil model 3370
S-B Power Tool Co.
773/286-7330

Benchtop drill press:
Grizzly model G1199
West of Mississippi River:
800/541-5537
East of Mississippi River:
800/523-4777

Compound mitersaw and 12" portable thickness planer:
Delta models 36-220 and 22-560
800/438-2486

Lathe:
Coronet model CL1
Record Tools
905/428-1077

Scrollsaw:
Hegner model Multimax 14E
Advanced Machinery Imports
800/322-2226

1×30" Strip sander:
Central Machinery
Item 07830-8RMA
Harbor Freight Tools
800/423-2567

Tablesaw:
Jet model JTS-10 with Xacta fence
800/274-6848

PORTABLE POWER TOOLS

Biscuit joiner:
Makita model 3901
800/462-5482

Circular saw:
Skil model HD5658
S-B Power Tool Co.
773/286-7330

Cordless drill:
Hitachi model DS13DV2B
800/706-7337

Detail sander:
Fein model Msxe6362
800/441-9878

Electric drill:
Craftsman model 27141
Call or visit your local *Sears* store

Jigsaw and 3×21" belt sander:
Bosch model 1584DVS and 1274DVS
S-B Power Tool Co.
773/286-7330

Motorized rotary tool:
Dremel model 3956 Multi-Pro
800/437-3635

Router for handheld use, random-orbit sander, and cordless circular saw:
DeWalt models DW621, DW423, and DW936K
800/433-9258

Router for router table:
Freud model FT2000E
800/334-4107

Shop vacuum, 1/4-sheet finishing sander, and router/trimmer:
Porter-Cable models 7810, 340, and 7310
800/487-8665

POWER-TOOL ACCESSORIES

Drill and driving bits, and portable work table:
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Mitersaw blade:
Freud model F80
800/472-7307

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Freud
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Tablesaw blade:
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Lacquer finish:
Deft Clear Wood Finish
800/544-3338

Oil and polyurethane finishes:
Minwax Antique Oil Finish and Fast-Drying Polyurethane
800/526-0495

Pliers, screw drivers, and Robo-Grip self-adjusting pliers:
Craftsman Professional
Call or visit your local *Sears* store

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American Tool Companies
800/866-5740

Staple gun and hot-melt glue gun:
Arrow models T50 and TR550
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Woodworking and machinist's vises:
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Just like it says on the box, CMT and Marc Sommerfeld have created a cabinetmaking set for building arched raised panel doors accurately and easily. The set contains 6 CMT bits made from the best quality steel and carbide available and coated with CMT's trademark orange non-stick PTFE

- NEW raised panel bit with back cutter
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Select a template set from the 4 different designs and make your own professional raised panels.
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Circle No. 1312

Make Your Workshop Pay Off BIG!

Craftsmen everywhere are using the low-cost Woodmaster to **bring in welcome extra cash** and to **save** on all their lumber needs. You can, too!

With the big 18-inch Woodmaster or the standard 12-inch model, you can quickly convert low-cost, rough lumber into valuable finished stock. You can turn out perfect picture frame moldings, crown, bed and base moldings, tongue & groove, door and window trim. . .all popular patterns. . .any custom design.

You can do custom work for friends, neighbors, lumberyards, picture framers, home remodelers, hobby shops and businesses.

Because it takes just seconds to convert a $2 rough board into $10 worth of finished trim, you can see why so many Woodmaster owners enjoy substantial extra incomes!

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Here's what Woodmaster owner L. C. Griffin of Nashville writes: *"The shop test article in* ***Wood Magazine*** *that said they loved your Variable Feed Rate is what sold me. They were right."*

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Woodmaster's Quick-Change Molding Head lets you create custom moldings from any stock. Choose from over 250 standard trim and picture frame patterns...or design your own!

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Roll-Around Tool Base

Continued from page 67

end cap, flush against the end (B) and sides (A). Do not glue the blocks to A and B.

5 Cut the swivel-caster mount (E) to the length of the opening *minus* ⅛". Bevel-rip one edge at 15° where shown on the Exploded View drawing. Mark and cut a pair of 1" radiuses on opposite corners. Drill the mounting holes, and bolt a pair of 2" swivel casters to the bottom side of the mount (E).

6 Mount a pair of 1½" butt hinges 2½" long to the bottom side of the caster mount (E). (After twisting off several of the screws supplied with the hinges, we used #10×½" panhead sheet-metal screws to secure the hinges to the caster mount.) Then, drill the pilot holes and screw the hinges to the end (B) where dimensioned on the Swivel Caster drawing.

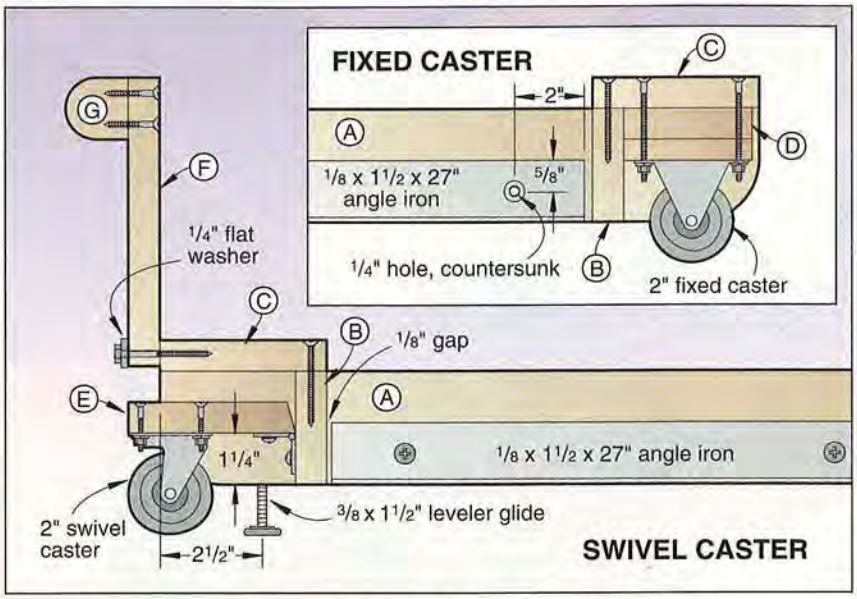
Add the angle iron and leveling glides next

1 Hacksaw a pair of ⅛×1½" angle iron pieces cut to the length of the opening minus ¼". With a cloth and paint thinner, thoroughly clean the angle iron before bringing it in contact with your wood.

2 Drill equally spaced mounting holes through the angle iron. See the side (A) on the Parts View for spacing. Next, transfer the hole centerpoints to the inside face of the sides (A). Using a high-speed steel countersink bit, countersink the holes on the inside face of each piece of angle iron.

3 Disassemble the tool base, and drill the mounting holes through the sides (A) for attaching the angle iron. Counterbore the holes on the outside face of the sides (A) for housing the T-nuts.

4 Cut a 1½" radius on the bottom corners of the sides (A) where shown on the drawings.



5 Mark the centerpoints, and drill the mounting holes for the ⅜" threaded inserts on the bottom edge of the sides, 2½" in from the ends where shown on the Swivel Caster drawing.

6 For ease in driving the inserts into the sides (A), cut the head off a ⅜×3" bolt. Double-nut the bolt and thread the insert onto the bottom of the bolt below the nuts. Chuck the assembly into your drill press, and turn the chuck by hand to drive the insert squarely into the mounting hole. Repeat for the second insert.

Add the cam-action foot lever

1 Transfer the patterns from the patterns insert for the full-sized cam lever (F) and the toekick (G) to ¾" stock, and bandsaw them to shape. Sand the edges to remove the saw marks.

2 Drill a ¼" hole through the cam lever for attaching it to the end cap (C) later. Mark the centerpoint, and drill a mating pilot hole in the end cap used at the swivel caster end of the base.

3 Drill a pair of mounting holes through the cam lever and into the toekick. Glue and screw the toekick to the cam lever.

Final assembly and finishing

1 Remove the casters from the base. Remove the hinges from parts B and E.

2 Glue and screw the base ends (B) between the sides (A), checking for square. Screw the end caps (C) in place.

3 Add a clear finish or paint the pieces the same color as the machine it will support. Be careful not to get any finish in the threaded inserts used to house the levelers. Paint the angle iron.

4 Drive the panhead sheet-metal screws to hinge the caster mount (E) to the end (B).

5 Use a wrench to drive the ¼" lag screw connecting the cam lever (F) to the end cap (C).

6 Tap the T-nuts in place, and secure the angle iron to the base sides. Bolt the casters in place.

7 Add the levelers. Raise the levelers so the base rests on the levelers when the cam lever is flipped to the right side, raising the caster mount and swivel casters. When you want to move the tool, flip the cam lever to the left to lower the casters.

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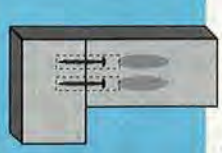

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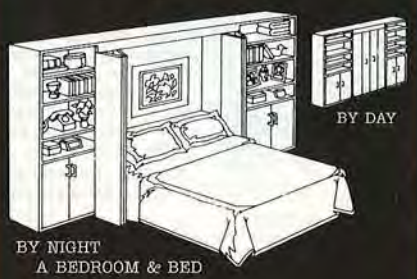

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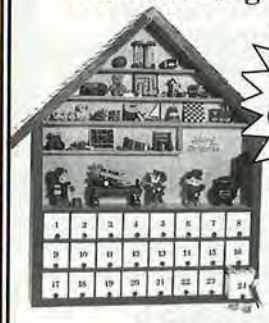

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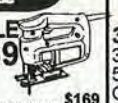

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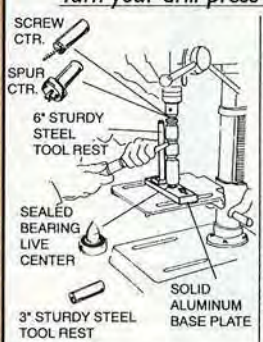

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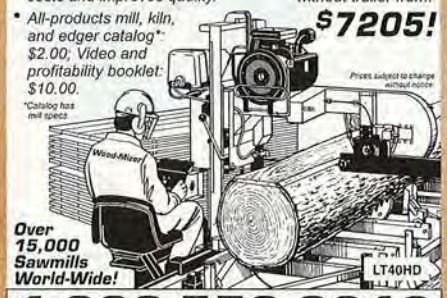

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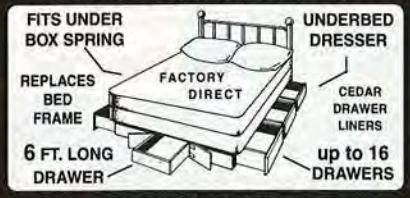

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Print this article

Hammerite finish ideal for shop fixtures

Wouldn't it be nice to put a finish on your shop cabinets that's tough enough to stand up to everyday dings and gouges? I recently tried a paint that many machine manufacturers have used for years to protect tools from wear and tear.

Hammerite Hammered Metal Finish produces a glossy, pebbled finish, and comes in a dozen metallic colors. Originally designed as a one-step, anti-rust coating for metal, it contains tiny particles of tempered glass and aluminum that give the paint a super-tough finish when it cures completely.

I used Hammerite finish on several IDEA SHOP™ 3 cabinets and fixtures that were made from inexpensive medium-density fiberboard (MDF) and particleboard. After sealing the edges with oil-based primer, I applied the paint with a short-napped, cut-pile roller. Hammerite goes on thick enough in one coat to hide minor imperfections in the wood, and lap marks easily blend together.

While it dries to the touch in 30 minutes and can be handled after drying overnight, it takes six weeks for Hammerite to cure fully. But the custom appearance and extreme durability make it worth the wait.

—Tested by Jan Hale Svec

PRODUCT SCORECARD

Hammerite Hammered Metal Finish

Performance	★ ★ ★ ★ ★
Price	About $12.50 per quart
Value	★ ★ ★ ★ ★

Hammerite Products, P.O. Box 11047, Tacoma, WA 98409. Call 800/733-4413.

Put disposable knives in any jointer or planer

Have you ever put off changing the knives in your planer or jointer because of the struggle it takes to get them reset perfectly? Have you wished for a disposable knife system like those available on some of the newer 12" portable planers? Well, your wish—and mine—has been granted.

Esta-USA offers a disposable knife system that enables you to retrofit virtually any planer or jointer, from the smallest benchtop units to 36" industrial models. With the Dispoz-A-Blade system, you replace the original knives with two-piece units comprised of a knife holder and a twin-edged, disposable knife.

You adjust the knife height for the system only once. For subsequent knife changes, you simply loosen the gibs, slide the holders out, flip the knives over or replace them with a new set. Then, you reinstall the holders in the cutterhead, and tighten down the gibs. The knives fit over two alignment pins on the holder, and two small magnets in the face of the holder keep the knives in position.

You should be able to change knives and be back up and running in 10–15 minutes. Just try doing that with your regular knives!

The knives, available in high-speed steel and cobalt, come with an unbelievably sharp edge. The high-speed steel set I installed in my 12" Belsaw planer produced the finest cut of any knives I've used. Such a fine edge nicks easily, but if you do nick the knives, simply shift them slightly to offset the nicks and maintain a smooth cut. Deep nicks require switching edges or buying new knives, since they can't be resharpened.

The cost to retrofit my planer with three holders and knives was $173, including shipping and handling. A three-piece set of twin-edged replacement knives runs only $60—what original equipment knives cost. That's also about what I'd expect to pay to have the three 12" original knives resharpened twice, at a cost of $10 per knife. But even if they cost more, the Dispoz-A-Blade knives would be worth it in the time they save you if you mill a lot of lumber.

—Tested by Dave Henderson

PRODUCT SCORECARD

Esta-USA Dispoz-A-Blade jointer and planer knife retrofit system

Performance	★ ★ ★ ★ ★
Price	$173 as tested
Value	★ ★ ★ ★ ★

Esta-USA, Hillside Road, Barryville, NY 12719. Call 914/557-8092.

Continued on page 114

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361	3X24 Belt Sander	202
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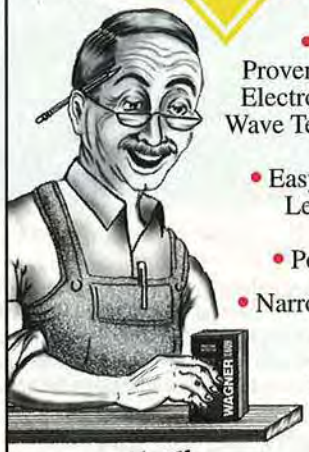

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JUST GET IT... FREE!—For a limited time the In-feed and Out-feed Tables are yours with the purchase of a 16-32 Plus Drum Sander. So if you're still wrestling with a belt sander, see your Performax Dealer today for a demonstration of how easy sanding can be with a Performax Drum Sander. **PERFORMAX PRODUCTS.** 50¢. *Circle No. 78.*

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RBINDUSTRIES, WOODWORKING TOOLS & ACCESSORIES—100% Made in USA. The NEW 1996–1997 RBI catalog features the all new HAWK Precision *ULTRA* Scroll Saws, "4-in-1" and "3-in-1" Universal Woodplaner Systems, and 26" Variable Speed Drum Sander, 38" Drum Sander, the all NEW Panelmaster II Raised Panel Door Machine, Router Tables, Books, Accessories, Patterns, and Much More. When you buy from rbindustries, you're saving big money by buying factory-direct from one of America's premier woodworking tool manufacturers. We stand behind every piece of equipment we manufacturer with our exclusive 30-Day, Money Back Guarantee and 5-Year Warranty. Send today for your FREE catalog. **RBINDUSTRIES, INC.** Free. *Circle No. 84.*

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MISCELLANEOUS

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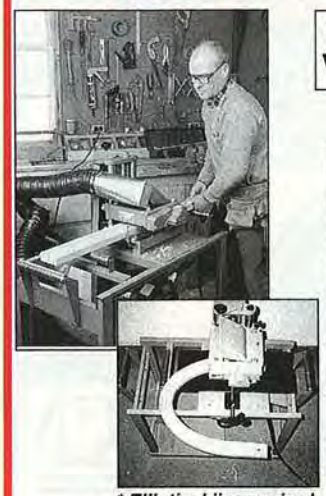

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PRODUCTS THAT PERFORM

SHOP TESTED

Continued from page 106

Molded sanding blocks

The sharp edges that help define decorative moldings also make these moldings difficult to sand. Without a form-fitting sanding block for support, the sandpaper can round off the edges.

But now, you can make your own custom sanding blocks to match even the most intricate trim. Sand Form consists of a two-part putty that, when mixed, conforms to fit the shape of any molding. When it hardens, you peel the rubber mold off the trim, cover it with sandpaper, and you're ready to sand.

To mix the putty, you knead equal pieces of the two parts together and place the mixture on a mounting block. Press the putty onto the molding you want to sand, and leave it to harden for 15 minutes. A grid pattern on the bottom of the mounting block holds the sanding block in place.

The putty conforms so well on sharp inside corners that it doesn't always allow for the thickness of the sandpaper, resulting in a flimsy edge. However, I found that placing a couple of layers of masking tape on the molding prior to applying the putty compensated for this, and gave me better-fitting blocks. The Sand Form kit should yield 7-10, 1¼×2¾" reusable blocks.

—Tested by Bob McFarlin

PRODUCT SCORECARD

Sand Form

Performance	★ ★ ★ ★ ★
Price	About $15
Value	★ ★ ★ ★ ★

Systems Manufacturing Co., P.O. Box 505, Tujunga, CA 91043-0505. Call 818/353-7876.

Continued on page 116

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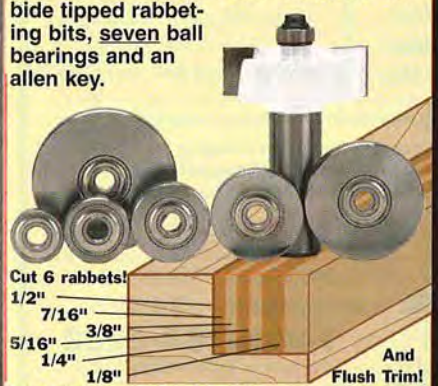

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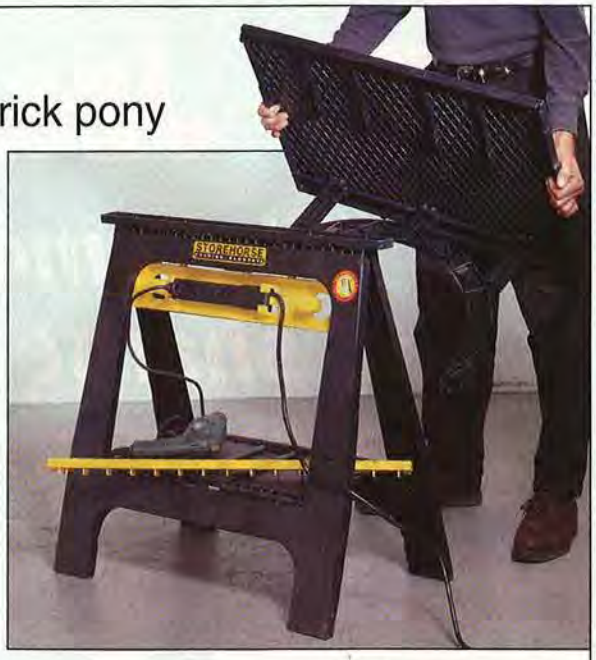
Continued from page 114

Storehorse Folding Sawhorse not a one-trick pony

If you're like me, you probably consider sawhorses a necessary evil—handy, but usually just in the way. However, a folding sawhorse with a host of accessories could change the way you feel about "old paint."

The Storehorse XL Folding Sawhorse, a strong but lightweight sawhorse made from recycled plastic, stands 30" high, has a built-in shelf between the legs, and folds to 2" thick. Weighing only 12 pounds, it will support 500 pounds. You'll definitely want the "optional" Top Protector ($4.99), but I found the Storehorse's ease of use and storage worth the $25 total price tag.



But the folks at Storehorse have added a number of slick accessories that expand this sawhorse's capabilities. The Hobbytop ($19.99) attaches as shown at *right*, to give you a 20×30" horizontal worktop, and tilts to serve as drafting table. I loaded various benchtop tools onto the top, and it provided a stable and handy work surface.

The Cord 'N Plug ($15.99), a six-outlet powerstrip with a circuit breaker, clips to the Storehorse's leg near the top or below the shelf. V-notched SawBucks ($9.99) snap on to hold round or odd-shaped materials, as well as a 2×10.

The only option I didn't care for was the Outfeed Roller ($15.99). Although it adjusts easily to various heights, the roller doesn't spin freely, and it's just too small to handle heavy sheet goods.

—Tested by Bob McFarlin

PRODUCT SCORECARD

Storehorse XL Folding Sawhorse

Performance	★ ★ ★ ★ ☆
Price	$19.99 for XL basic unit
Value	★ ★ ★ ★ ★

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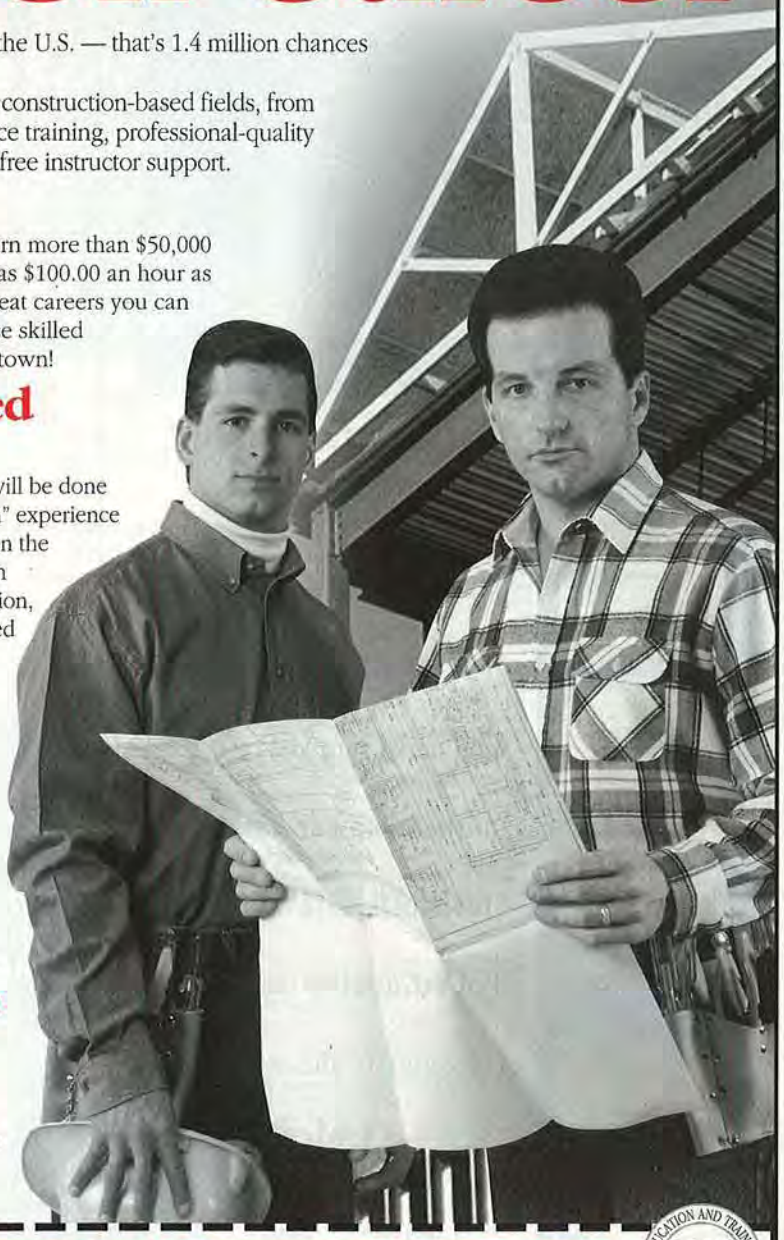

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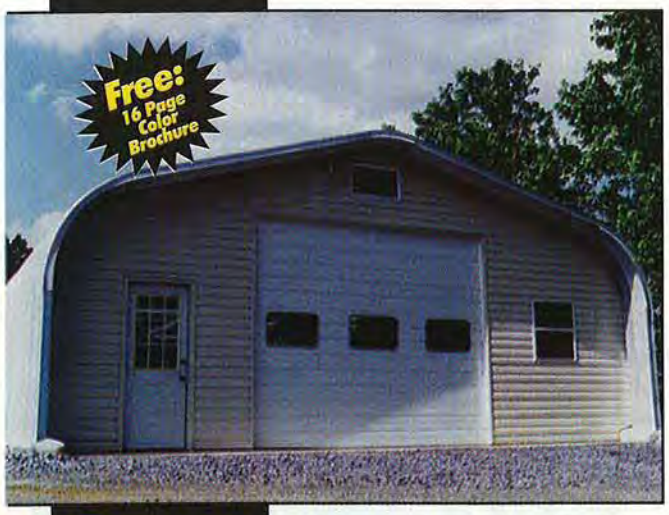

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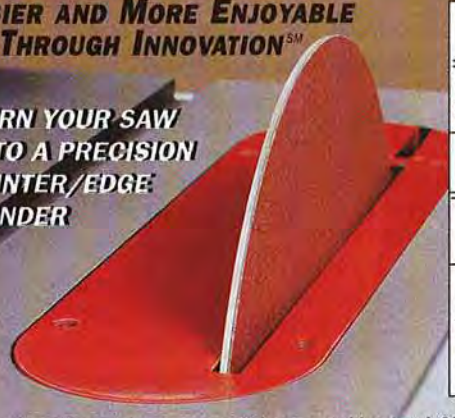

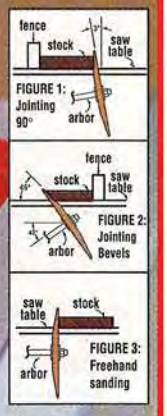

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817-773	60 Grit	$2.80	817-787 120 Grit $2.80

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DELTA TOOLS

Model	Description	List	Sale
31-695	6" Belt/9" Disc Sander	441	309
23-710	New Sharpening Center	217	169
23-680	6" Bench Grinder 1/4 HP	80	69
31-460	4" Belt/Disc Sander	198	125
40-560	16" 2 speed Scroll Saw	230	155
40-540	NEW 16" var/spd Scroll Saw	249	189
11-990	12" Bench Drill Press	295	184
11-090	32" Radial Bench Drill Press	405	309
43-505	1/2" Bench Router/Shaper	398	299
22-540	12" Bench Top Planer	Sale	329
28-195	NEW 10" Band Saw	390	309

22-560 NEW 12-1/2" Bench top Planer **Sale 395.00**

36-865	NEW Versa Feeder Stock Feeder		249
36-220	10" Compound Mitre Saw	294	199
28-185	Bench Band Saw	213	168
37-070	6" v/spd Bench Jointer	351	265
14-650	Hollow Chisel Mortiser	380	239
33-990	10" Radial Arm Saw	981	799
33-055	8-1/4" Sawbuck comp w/legs	846	665
36-905	30" Unifence	346	245
36-906	50" Delta Unifence	444	325
17-900	16-1/2" Floor Drill Press	490	399
37-190	6" Deluxe Jointer	603	445
36-275	8-1/4" Builders Saw	358	268
36-285	8-1/4" Builders Saw w/ stand	Sale	285
36-210	10" Compound Mitre Saw	344	225
36-040	8-1/4" Compound Mitre Saw	190	139
34-555	Sliding Table	487	325
36-250	10" Slide Compound Saw	825	489
31-780	Oscillating Spindle Sander	253	194
46-700	12" Wood Lathe	575	465
43-355	3/4" Shaper 1-1/2 HP	Sale	799
37-154	6" Jointer DJ-15	Sale	1289

The following Delta tools have $50.00 rebates ! Take $50 off price shown.

34-444	10" Contractors Table Saw	Sale	659
34-445	10" Table Saw w/30" fence.	Sale	839
28-275	14" Band Saw 3/4 HP	Sale	635
28-280V	14" Band Saw 1 HP motor.	Sale	798
40-650	Q3 18" Scroll Saw	Sale	479
22-675	DC380 15" Planer	Sale	1175
31-280	Sanding Center w/ stand	Sale	789

MILWAUKEE TOOLS

6527	NEW Sawzall with case	343	169
6537-2	6527 w/quick lok blade change	224	175
0415-21	12V Drill w/kyls chuck&2 batt	380	172
0224-1	3/8" Drill 4.5 amp magnum	236	132
0234-1	1/2" Drill 4.5A mag 0-850 rpm	255	129
0235-1	1/2" Drill w/keyless chuck	255	135
0244-1	1/2" Drill 4.5A mag 0-600 rpm	255	129
0222-1	3/8" Drill 3.5 amp 0-1000 rpm	213	119
0228-1	3/8" Drill 3.5 amp 0-1000 rpm	207	116
0375-1	3/8" close quarter Drill	255	148
0379-1	1/2" close quarter Drill	288	165
6546-1	cdls Screwdv 200 & 400 rpm	150	89
6547-1	6546-1 w/bits,1/4" chuck & cs	185	108
5399	1/2" D-hdle Hammer Drill Kit	355	219
6507	Original SawZall with case	278	155
5397-1	3.8" v/ spd Hammer Drill Kit	275	145
5371-1	1/2" v/ spd Hammer Drill Kit	360	194
3107-1	1/2" v/spd right angle Drill Kit	411	234
3300-1	1/2" v/ spd right angle Drill	378	219
5682	Router 2 HP w/ collets	367	165
6142	4-1/2" Grinder w/cse & acc.	224	125
6365	7-1/4" Circular Saw 13 amp.	229	125
6368	6365 w/fence, blde,& cse	259	142
6256	Top Handle Jig Saw	278	159
6490	10" Mitre Saw	496	265
6491	6490 w/ carbide blade & bag	594	328
6494	10" Compound Mitre Saw	585	315
6266-6	Top Handle Jig Saw	315	169
6496	10" Slide Compound Saw	1050	569

FREUD CARBIDE TIPPED SAW BLADES
5/8" Bore - Industrial Grade

Item	Description	Teeth	List	Sale
LU72M010	Gen Pur. A.T.B.	10" 40	69	42
LU82M010	Cut-off	10" 60	93	44
LU84M011	Comb	10" 50	78	42
LU85M010	Super Cut-off	10" 80	115	59
LM72M010	Ripping	10" 24	69	38
LU73M010	Cut off	10" 60	84	45
LU87M010	Thin Kerf	10" 24	72	44
LU88M010	Thin Kerf	10" 60	88	49
LU98M010	Ultimate	10" 80	128	68
LU91M010	Compnd Mitre	10" 60	88	54
F410	Quiet Blade	10" 40	95	49
F810	Quiet Blade	10" 80	135	74
TK303	7-1/4" Finishing	40	38	25
TK906	10" Combo	50	53	32
SD308	8" Dado - Carbide		230	119
SD506	6" carbide w/case & shims		292	145
SD508	8" carbide w/case & shims		344	168
FB100	16 piece Forstner Bit Set		338	194
94-100	5 pc. Router Bit Door System		320	169

The following Freud tools have rebates ! The price shown is before rebate.

FJ85	Top Hdl Jig Saw - $25 rebate	Sale	125
JS102	Biscuit Jointer - $50 rebate	Sale	179
FT2000E	Plunge Router - $30 rebate	Sale	205
TR215	8-1/4" Mitre Saw - $50 rebate	Sale	349
FE82	3-1/4" Planer - $25 rebate	Sale	115

WAP VACUUMS

Model	Description	List	Sale
766RDF	10 gallon turbo vacuum	845	465
766RDF-D	"Drywaller" 10 gal turbo vacuum	915	549
766RDF-DAS	Above vac w/ auto start	950	589

MAKITA TOOLS

5090DW	3-3/8" Saw Kit 9.6 volt	280	148
DA391D	3/8 angle Drill 9.6V	166	109
DA391DW	3/8" angle Drill Kit 9.6V	341	185
ML900	Incandescent Flashlight 9.6V.		19.95

6095DWE	9.6 volt Drill Kit w/2 batt	Sale	125
6095DWLE2	6095DWE w/flashlight	Sale	135
6095D	6095DW Drill only & cse	Special	65
632007-4	9.6 volt Battery	47	30
632002-4	7.2 volt Battery	39	28
6201DWHE	9.6V 3/8" Drill Kit w/2 batt	351	159
6211DWHE	12V 3/8" Drill Kit w/2 batt	368	175
6311DWHE	12V 1/2" Drill Kit w/2 batt	399	205

NEW CORDLESS DRILLS WITH 2.0 AMP HIGH CAPACITY BATTERIES

6213DWAE	12V 3/8" Drill Kit	325	169
6233DWAE	14.4V 3/8" Drill Kit	358	199

SUPER CORDLESS SPECIALS

6073DW	7.2V cdls Drill Kit. Variable speed & clutch. Complete with battery, charger, & case.	Super Sale	99

9900B	3"x21" Belt Sander w/bag	347	179
9924DB	3"x24" Belt Sander w/bag	360	189
4301BV	Orb. var. spd Jig Saw 3.5A	292	155
JR3000V	v/ spd Recip Saw w/case	264	135
9820-2	Blade Sharpener	433	215
N1900B	3-1/4" Planer with case	263	139
1912B	4-3/8" Planer	352	199
N9514B	4" Disc Grinder 4.6 amp	118	65
DA3000R	3/8" Angle Drill	355	179
2708W	8-1/4" Table Saw	637	309
6405	3/8" Drill Rev. 0-2100 rpm.	115	65
6510LVR	3/8" Drill Rev. 0-1050 rpm.	188	98
6013BR	1/2" Drill Rev. 6 amp	270	149
9401	4" x 24" Belt Sander w/bag	458	219
5007NBK	7-1/4" Circ Saw w/ case	250	125
LS1011	10" Slide Compound Saw	995	429
LS1211	12" Slide Compound Saw	1620	779
3901	Plate Joiner Kit	376	199
3612C	NEW 3 HP Plunge Router	492	279
LS1040	NEW 10" Cmpnd Miter Saw	460	259
LS1013	NEW 10" Dual Compound Slide Miter Saw	1088	599
BO5010	NEW 5" Random Orbit Sander with dust pickup	142	72

SENCO AIR NAILERS

SFN1+	Finishing Nailer 1" - 2" w/ cs	448	345
SN325	Nailer 1-7/8" - 3-1/4"	665	419
SLP20	Pinner w/cs 5/8 -1-5/8"	422	279
SKS	Stapler 5/8" - 1-1/2"	390	279
SN70	Framing -Clip Hd 2"-3-1/2"	725	449
SN60	Framing -Full Hd 2"-3-1/2"	708	459
SN65	15% more power than SN60	709	465
SFN40	Finish Nailer 1-1/4 - 2-1/2	569	389

BOSTITCH AIR NAILERS

N80S-1	Stick Nailer	Super Sale	339
N80C-1	Coil Nailer	Sale	339
RN45	Coil Roof Nailer 3/4 - 1-3/4	845	369
N60FN-2K	Finishing Nailer w/ case	557	295
BT35-2K	Brad Tacker 5/8" - 1-3/8" with case, oil, & brads	279	125
CWC100	1 HP Pancake Compressor	440	289
MIIIFS	Flooring Stapler 15 gauge	902	529
S32SX-1K	Finish Stapler-1/2" - 1-3/8" with case & oil	269	145

SKIL TOOLS

77	7-1/4" Worm Drive Saw	Sale	158
77M	77 Mag Worm Saw	Sale	168

PANASONIC CORDLESS

EY6181CRKW	9.6V Drill Kit w/ 2 batteries, 1 hour charger, & case	307	169
EY6100EQKW	12V Drill kit w/ 2 Ironman batteries, 15 min. charger, & case	379	179
EY6100SEQK	Same as above but has 1 Ironman battery and 1 diagnostic battery	Sale	204
EY6101SQK	12 volt 1/2" Drill w/ 15 min. charger, diagnostic battery, & case	438	249
EY6101EQKW	Same as above but has two Ironman batteries	Sale	249
EY3502EQKW	NEW 4-3/8" 12V Metal Cutting Saw Kit	500	289

PASLODE IMPULSE GUNS

IM250	Trimpulse Finish Nailer Kit	1130	548
IM325	Impulse Framing Nailer Kit	1130	548
CT325SS	Cdls Framing Nailer Kit	1120	495

CLAYTON OSCILLATING SPINDLE SANDERS

140	Portable sndr w/ 4-1/2" spindle	625	559
146	Portable sander w/ 9" spindle	685	609
100	Floor mount sndr 4-1/2" spindle	785	709
106	Floor mount sander 9" spindle	845	759

SIOUX TOOLS

8030	3/8" var/spd Drill	263	149
8000	3/8" var/spd close qtr Drill	211	125
690	5" Air Random Orbit Sander	228	132

NEW Dewalt Bench Top Tools

DW708
12" Dual Compound Slide Mitre Saw
Sale 679

DW788
20" Scroll Saw
Sale 489

DW733
12" Planer
Sale 459

DEWALT®
High Performance Industrial Tools

DEWALT TOOLS

Model	Description	List	Sale
DW321K	Top Handle Jigsaw Kit	300	164
DW364	7-1/4" Circ. Saw w/brake	294	162
DW610	1-1/2 HP 2 handle Router	266	152
DW411	1/4 sheet Palm Sander	88	58
DW100	3/8" Drill, 4 amp,0-2500 rpm	118	68
DW682K	Biscuit Joiner with case	448	199
DW705	12" Compound Mitre Saw	734	359
DW625	3 HP v/ spd PlungeRouter. **DW625 router comes with DW6913 edge guide !**	Sale	279
DW621	NEW 2 HP Plunge Router **DW621 comes with Free DW6956 fine height adjuster**	400	218
DW675K	3-1/8" Planer with case	292	164
DW431	3 x 21 v/spd Belt Sander	338	188
DW421	5" Palm Ran. Orb Sander	144	74
DW444	6" Ran Orb Sander	266	145
DW443	DW444 w/hook & loop pad.	266	145
DW673K	NEW Laminate Trimmer Kit	364	188
DW274	Drywall Gun, 0-4000, 6.3 amp	160	95
DW268	Tek Gun, 0-2500, 6.5 amp.	288	159
DW935K	14.4V 5-3/8" Trim Saw Kit with 2 batteries	444	237

DEWALT CORDLESS DRILLS

DW952K-2	3/8" variable speed w/ two 9.6V XR batteries	284	129
DW962K-2	3/8" variable speed w/ two 9.6V XR batteries	330	179
DW972K-2	3/8" variable speed w/ two 12V XR batteries	362	182
DW904	12 volt flashlight	48	29.95
DW972K-2 drill & DW904 flashlight		Sale	199
DW991K-2	3/8"variable speed w/ two 14.4V XR batteries	415	209
DW994KQ	1/2" variable speed w/ one 14.4V XR batteries	458	239
DW996K-21	2" v/spdw/ two 14.4 XR batt **Above drill kits come w/ charger & steel case!**	259	219
DW991KS-2	DW991K drill, DW935 trim saw, & case	Sale	349

DEWALT 18 VOLT CORDLESS TOOLS

DW938K	NEW Recipro Saw Kit	520	289
DW995K	1/2" Drill Kit	428	229
DW997K	1/2" Drill/Hammer Drill Kit	454	249
DW936K	5-3/8" Saw Kit	458	249
DW995KS-2	DW995K Drill, DW936 Saw and case	Sale	395

HITACHI TOOLS

C8FB2	8-1/2" Slide Compound Saw	1169	489
C10FC	10" Mitre Saw	533	199
C10FS	10" Slide Compound Saw	1627	739
C15FB	15" Mitre Saw	1346	659
NV45AB	Coil Roofing Nailer	935	399
NT65AA	15 ga. Brad Nailer 1-1/4 -2-1/2"	636	365
C10RA	NEW 10" Table Saw	632	319

BIESEMEYER FENCES

B-50	50" Commer. Saw	443	325
T-SQUARE 52	52" Homeshop	360	275
T-SQUARE 40	40" Homeshop	335	255
T-SQUARE 28	28" Homeshop	325	245

PONY CLAMP FIXTURES

Model	Description	List	Sale	Lots of 12
50	3/4" Black Pipe	15.45	8.10	92.50
52	1/2" Black Pipe	12.65	6.95	74.95

BOSCH

Model	Description	List	Sale
1587VS	Top Handle "CLIC" Jig Saw	292	139
1587VSC	1587VS saw with case	Sale	149
1584VS	Barrel"CLIC"Jig Saw	288	139
Bosch Metal Case for above Jig Saws			24
Bosch 30 blade assortment for Jig Saws **1584VS or 1587VS** with steel case and 30 Bosch blades		Sale	28.99 175
1295DH	5" Random Orb Palm Sndr	145	89
1274DVS	3"x21" v/spd Belt Sander	301	175
1276D	4"x24" Belt Sander	379	225
1275DVS	3"x24" v/s Belt Sndr	379	214
1276DVS	4"x24" v/s Belt Sndr	408	229
1347AK	4-1/2" Grinder w/cs & acc	172	95
1194VSR	1/2" v/ spd Hammer Drill	272	155
1194VSRK	above Drill w/ case	303	169
1604A	1-3/4 HP 2 Handle Router	269	142
1613EVS	2HP v/s Plunge Router	369	199
1615EVS	3 HP v/s Plunge Router	536	289
1634VSK	Recip Saw 10.5 amp	335	159
3310K	12V T-handle Drill Kit	345	175
3610K	14.4V Drill Kit	354	195
3107DVS	5" Random Orbit Sander	165	98
3107DVSK	3107DVS with case	195	115
3725DVS	5" Random Orbit Sander	256	149
3727DVS	6" Random Orbit Sander	266	154
B3915	10" Slide Compund Saw	1050	589
B7001	Detail Sander - var/spd	Sale	89.95
11224VSR	7/8" SDS Rotary Drill	404	229

STABILA LEVELS

21990	NEW 10" Torpedo Level	Sale	12.95
24640	24" Level w/ hand holes	62.20	43
24670	48" Level w/ hand holes	79.70	55
24610	48" Level w/ angle setter vial	80	55
24610 level comes w/ Free 21990 Torpedo level !			
24680	72" Level w/ hand holes	145.45	99
27170	48" Level w/o hand holes	71	49
27000	78" Level w/o hand holes	146	105

AIRY AIR NAILERS

Model	Description	List	Sale
0241SK	Brad Nailer 3/8"-1 9/16"	180	95
0250SK	Brad Nailer 3/4"-2"	296	164
0626SK	1/4" Crown Stapler 3/8"-1"	194	104
	Above Nailers come w/case, fasteners, oil & wrenches		
0565T	Angle Finish Nailer 1"-2-1/2"	386	205

RECORD WOODWORKING VISES

Model	Jaw\Width	Opening	List	Sale
53E	10-1/2"\15"	Quick release	248	109
52D	7"\8"	Quick release with dog	169	79
52-1/2D	9"\13"	Quick release with dog	231	95

PORTA NAILER

401	Porta Nailer complete	295	209
501	Face Nailer complete	295	209

DAVID WHITE

LP6-20	Sight Level package - 20x	329	215
LP6-20XL	LP6-20 w/9056 tripod & 7620 rod	269	
LT8-300	Level Transit - 26x	739	489
LT8-300P	above Level w/ optical plum	869	565
LT6-900	Level Transit - 20x	419	269
ALT6-900A	Auto Level - Transit -18x	666	429
ALTP6-900	above Level with tripod & rod	799	499
ALP6-18HD	above Level w/ tripod & rod	599	395
LL100	Finish Line Laser Level	199	135
ML200	NEW Visible Beam Laser	979	799
ML200I	ML200 w/o detector & rod bracket	749	625

RYOBI SPECIALS

RE600	3 HP Plunge Router	500	235
BE321	3"x21" v/ spd Belt Sander	310	139
BT3000	10" Table Saw w/ stand	1125	539
AP12	12" Bench Planer	884	389
OSS450	Oscillating Spindle Sander	340	159
CD125K	12V cordless Drill w/ 2 batt	175	109
WDS1600	16"x32" Drum Sander	980	569
DBJ50	NEW Detail Biscuit Jointer	114	69

Msxe6362	FEIN Triangle Sander w/spd		199
Msx625	FEIN New Air Triangle Sander		195
LPN672	PONY Air Palm Nailer w/glove		89
RTM01	ROTOZIP Drywall cut out unit		68.95

QUAL-CRAFT PRODUCTS

2200	Pump Jack	79	58
2201	Pump Jack Brace	30	20
2203	Pump Jack guard rail holder	31	21
2204	Workbench & rail holder combo	53	39
2500	Adjustable Roofing Bracket	9.95	7.95
	Buy any 6 (can be assort.) deduct 10%		
2601	Wall Jack **Lots of 4 deduct additional 10%**	167	108

PORTER CABLE

9444	Profile Sander Kit	220	99
9444VS	New v/spd Profile Sander Kit	207	115
690	1-1/2 HP Router 8 amp	278	149
6931	Plunge Router Base	139	82
693PK	690 and 6931 plus case	Sale	199
691	1-1/2 HP Router D-handle	303	164
693	1-1/2 HP Plunge Router Base	338	184
697	1-1/2 HP Router/Shaper	418	235
698	Heavy Duty Shaper Table	238	135
352VS	3x21 v/s Belt Sander w/bag	321	165
360	3"x24" Belt Sander w/ bag	397	214
360VS	360 Sander w/ variable speed	429	229
362	4"x24" Belt Sander w/ bag	412	224
362VS	362 Sander w/ variable speed	446	239
9125	3-1/4" Planer Kit w/ case	250	145
9118	Porta Plane Kit 7 amp	400	235
505	1/2 sheet Pad Sander	249	139
97549	Top handle Jig Saw 4.8 amp w/ case & blades	275	144
330	Speed Block Sander 1/4 sheet	120	65
556	Biscuit joiner w/5556 fence	Sale	139
345	6" Saw Boss 9 amp	207	118
9647	TIGER CUB Recip. Saw	230	134
9637	Full var/spd Recip Saw 8 amp	276	148
7519	3-1/4 HP Router 2 Handle	469	255
7518	3-1/4 HP 5 speed Router	534	284
7539	3-1/4HP v/spd Plunge Router	534	279
7310	5.6 amp Laminate Trimmer	176	102
97310	Laminate Trimmer Kit comp	336	189
7335	5" Random Orbit Sander	254	135
97355	7335 w/ case & dust pick-up	274	145
7336	6" Random Orbit Sander	259	138
97366	7336 w/ case & dust pick-up	284	149
332	Palm Grip Rndm Orb Sander	133	59
333	above sander with dust bag	148	65
334	333 Sander with PSA pad	148	65
335	NEW Palmgrip Random Orbit Sander with dual flip pad	Sale	85
310	Production Lam. Trimmer	270	154
347K	7-1/4" "Framers" Circ Saw with plastic case	250	129
743K	7-1/4" "Framers" Circ Saw with case - left hand version	250	129
9737	Tiger Recipro Saw	307	165

Porter Cable Pneumatic Nailers

BN125	Brad Nailer -18 ga. 5/8"- 1-1/4"	144	89
BN200	Brad Nailer -18 ga. 3/4"-2"	238	139
FN250A	Finish Nailer -16 ga. 1"-2-1/2"	362	189
DA250A	Nailer -15 ga. 1-1/4"-1-1/2"	412	235
FC350	Framing Nailer - clipped head	558	289
FR350	Framing Nailer - round head	558	289
RN175	NEW Roofing Coil Nailer	504	289

NEW Porter Cable Compressors !

CF1400	1 HP, 4 gal. Pancake	Sale	195
CF1540	1-1/2 HP, 4 gallon Side Stack	Sale	295
CF2400	2 HP, 4 gal. Side Stack	Sale	319

9830	9.6V Drill Kit w/ 2 batteries	284	145
9862	12V Drill Kit w/ 2 batteries	392	179
9862F	9862 Drill Kit with flashlight	Sale	189
9863	NEW 12V Drill Kit - pistol grip	319	179
9872	14.4V Drill Kit w/ 2 batteries	424	205

FREE FREIGHT TO THE CONTINENTAL STATES ON EVERY ITEM • GIFT CERTIFICATES NOW AVAILABLE

Circle No. 92

A Great Big Thanks To You!

From bottom left: **Jan Hale Svec, assistant design editor; Margaret Closner, production manager; Jim Downing, design editor; Marlen Kemmet, how-to editor; Natalie Cooley, administrative assistant; Lee Gatzke, art director; Larry Johnston, special-interest editor; Kerry Gibson, general-interest editor; Cheryl Cibula, senior graphic designer; Jim Harrold, managing editor; Bill Krier, assistant managing editor; Perry McFarlin, associate art director; Pete Stephano, features editor; Mike Satterwhite, contributing editor; Chuck Hedlund, project builder; (missing, Larry Clayton, editor, see *page 2*; Barb Helps, administrative assistant). Can you spot the four people in the photograph *above* who helped produce the premier issue of *WOOD* magazine back in September 1984? The fifth is on the cover of this issue. See the answers *below*.**

On this, the publication of our 100th issue of *WOOD*® magazine, we want you, our readers, to know that we appreciate your support. And, we pledge our best efforts to you in the future.

— The WOOD magazine gang

Original staff members: Jim Downing, Lee Gatzke, Pete Stephano, Marlen Kemmet

Print this article

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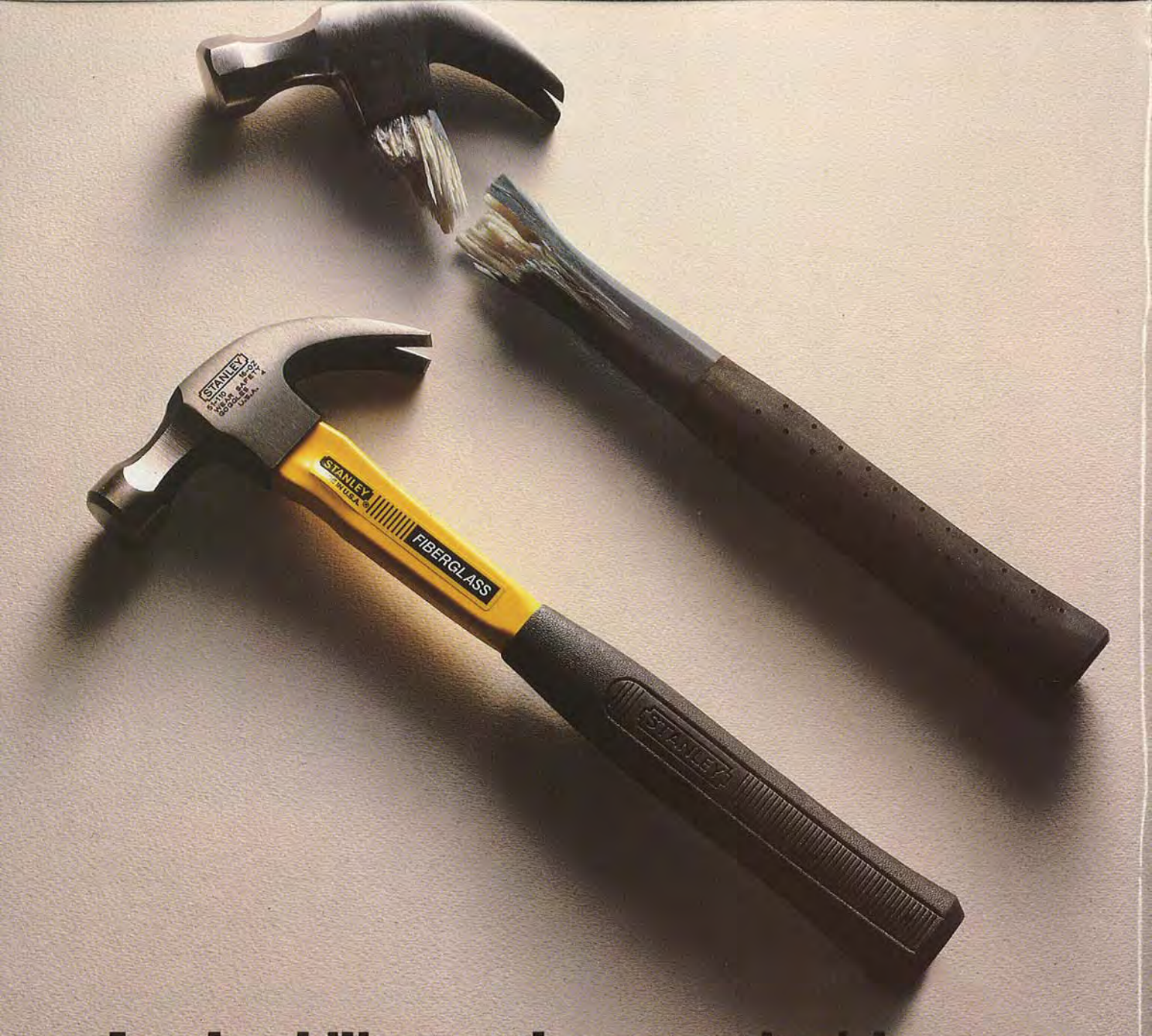
Some Folks Are Morning People By Nature. Others Are Morning People By Trade.

UNIROYAL®

LAREDO®

Tried. And True.™

There's a good reason Laredo® Light Truck Tires are made tough with DuraShield® construction. They're put to the test every day to be as reliable, as dependable and as true as the folks who choose them.



In a durability test, the competitor's hammer lasted 60 seconds. If you happen to need one for longer than that, buy a Stanley hammer.

This picture tells the story better than any words can. In our overstrike tests, the Stanley hammer outlasted the competitor's brand by a 4 to 1 ratio.*

You see, after years of research (and a whole lot of sleepless nights) our engineering department concluded that jacketed, solid-core fiberglass is more durable than the compression-molded variety some of our competitors use to make their hammers.

That's the Stanley philosophy. Don't quit working until your product is perfect. You'll find this kind of dogged determination across the board at Stanley. In everything we make. Like a garage door insulated to reduce noise. Or a closet organizer made with steel planks instead of wire so it doesn't wrinkle your clothes.

It's innovative thinking like this that's kept us ahead of the competition for more than 150 years. At Stanley we're not happy simply churning out products. We're only happy when our products are better than anyone else's.

STANLEY
helps you do things right.®

*Overstrike test conducted by striking hammer handle against metal object. © 1994 The Stanley Works.

Better Homes and Gardens®
WOOD® PATTERNS®
Full-sized for your woodworking convenience

NOVEMBER 1997 **ISSUE 100**

Dear Reader: As a service to you, we've included full-sized patterns on this insert for irregular-shaped and intricate project parts. You can machine all other project parts using the Bill of Materials and the drawings accompanying the project you're building.

Page 54

Page 66

- **Cyclone dust collector**
- **Mobile tool base**
- **Toddler bike**

Page 74

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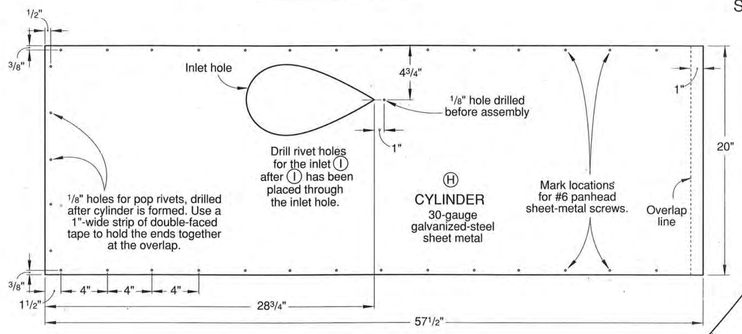
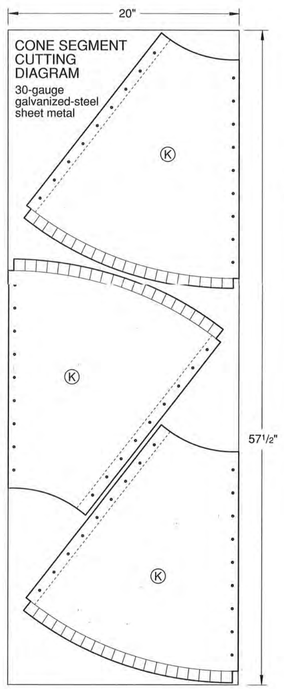
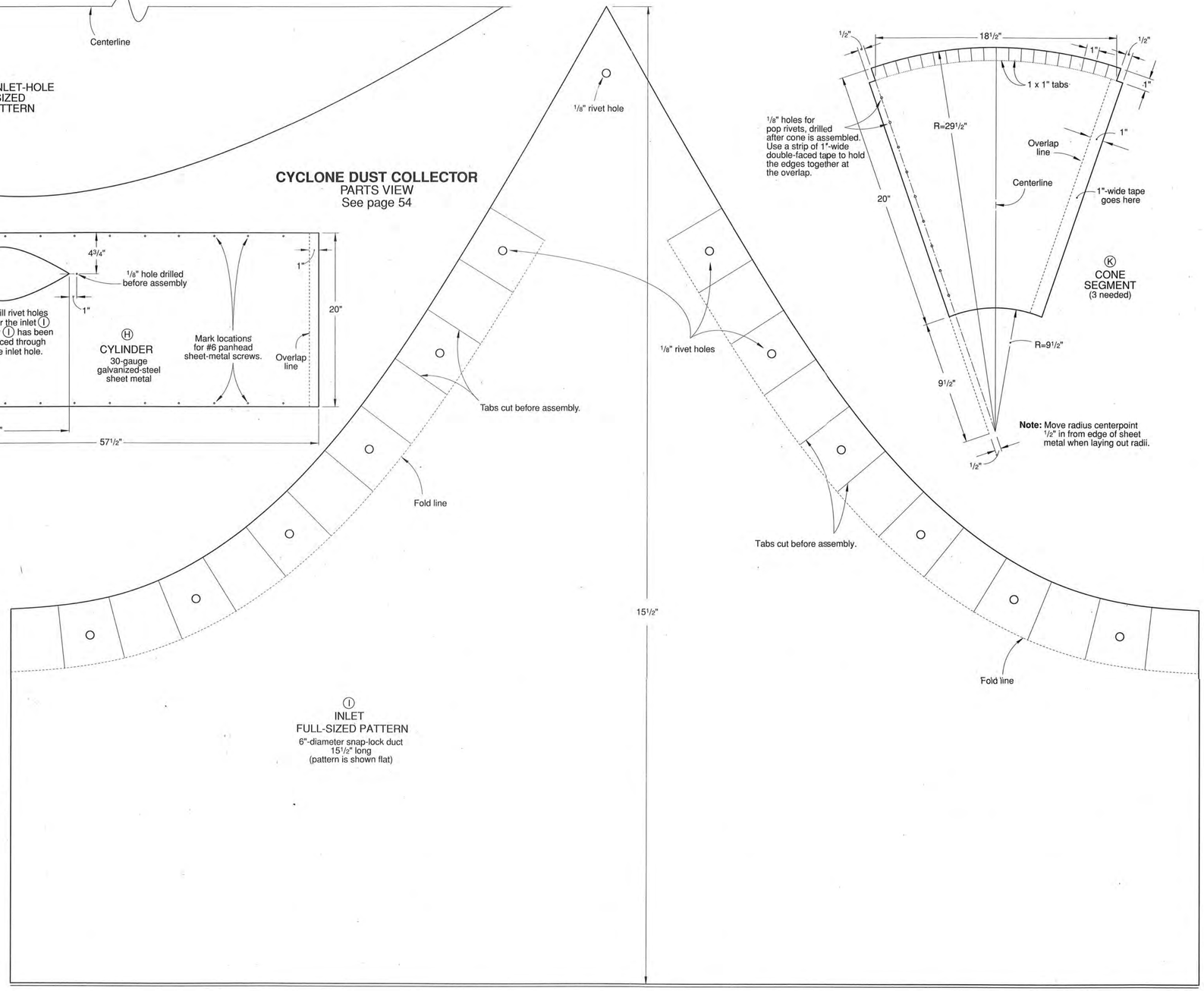
CYLINDER INLET-HOLE
FULL-SIZED
HALF PATTERN

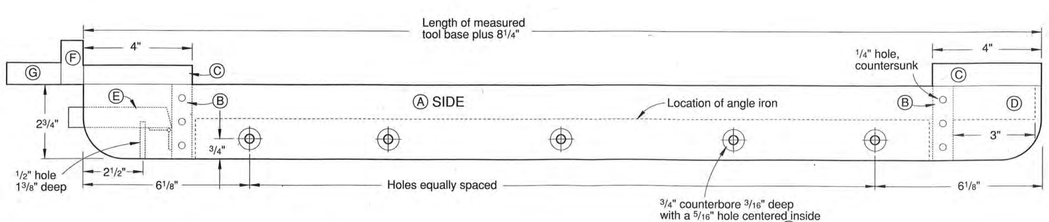
Centerline

CYCLONE DUST COLLECTOR
PARTS VIEW
See page 54

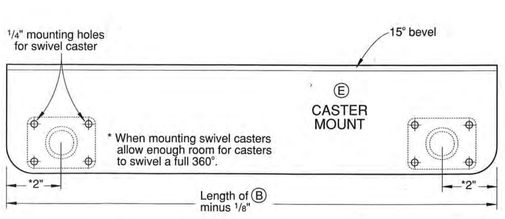


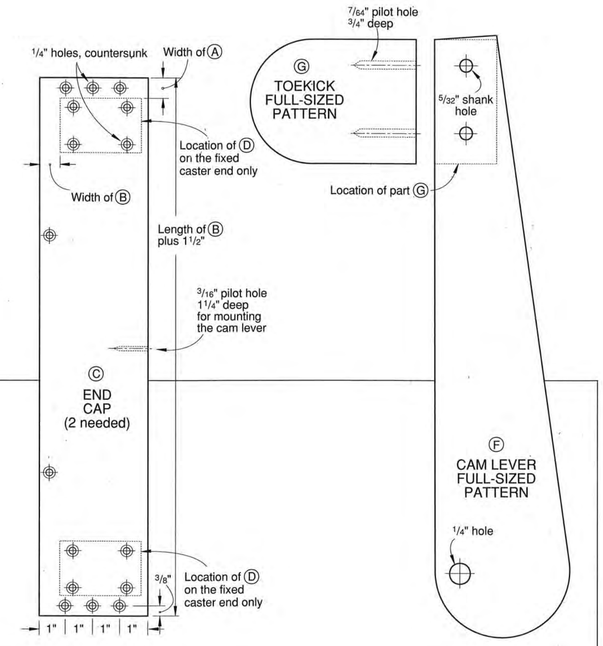






MOBILE TOOL BASE
PARTS VIEW
See page 66


1/4" mounting holes for swivel caster
15° bevel
Ⓔ
CASTER MOUNT
* When mounting swivel casters allow enough room for casters to swivel a full 360°.
*2"
*2"
Length of Ⓑ minus 1/8"



TODDLER BIKE
FULL-SIZED PATTERNS
See page 74

Ⓐ
FRAME

1/2" hole 3" deep centered on top edge of stock
(hole is drilled before cutting entire pattern to shape)

Top edge of board

Stop round-overs here

7/64" pilot holes 1/2" deep

3"

Stop round-over here

3/8" round-over

Stop round-overs here

3/8" round-overs

Location of Ⓑ

Stripe pattern

Stop round-over here

Ⓑ
FENDER
(2 needed)

3/8" round-over

Stop round-over here

Ⓗ
SEAT

5/32" holes, countersunk

5/32" holes, countersunk

3/8" round-over

1/4" round-over

Location of Ⓓ

1/2" hole

Ⓒ
FENDER SKIRT
(2 needed)

Note: Cut a third blank as a filler for routing.

Stripe pattern

Glue form to laminations from here to here.

Ⓕ
HANDLEBAR

3/4" holes

1/8" pilot hole 1 1/2" deep

After laminating handlebar
cut form to shape (waste is shaded).

Centerline

Ⓖ
FORM

HANDLEBAR AND FORM

Cut handlebar
to length here.

Cut handlebar
to length here.

3/16" hole

3 1/16"

3/4" holes for forks

Ⓔ
FORK BLOCK
(2needed)

2"

1"

1/2" hole

1/4" round-over

1"

4 1/8"

1"

6 1/8"

1/4" round-over

1/2" hole

Note: Cut a third blank as a filler for routing.

Ⓓ
SKIRT TRIM
(2 needed)